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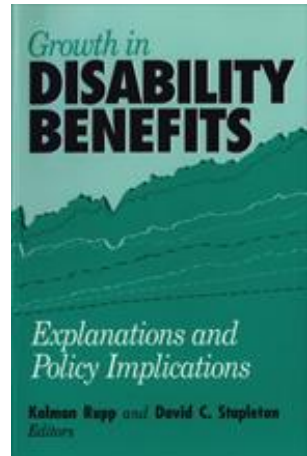
Empirical Analyses of DI and SSI Application and Award Growth

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From 1988 to 1992, the number of adults applying for and receiving benefits from the Social Security Administration's two disability programs greatly exceeded expectations. There were 330,000 more Social Security Disability Insurance (DI) applications in 1992 than in 1988, an average annual growth rate of 8.9 percent. Supplemental Security Income (SSI) applications increased by 430,000 over the same period, an annual growth rate of 10.5 percent. Awards grew even faster: an average of 10 percent per year for DI and 12 percent for SSI. One important feature of application and award growth during this period is that it was much higher in two major impairment categories—mental and musculoskeletal impairments—than in others.

In this chapter, we summarize findings from two related studies that analyze the determinants of the substantial growth experienced during the 1988 to 1992 period. We also summarize findings from a third study that examines program growth over the longer period from 1980 to 1993.¹

We analyze the issue of growth in the disability programs from an economic perspective. As discussed in Chapter 1, this perspective emphasizes the importance of individual choices in determining individual behaviors, such as applying for disability benefits. An individual's decision to apply for benefits will be influenced by a variety of factors, including the costs and benefits of working versus leaving the labor force to apply for disability benefits, the availability of potential sources of nonlabor income, the availability of health insurance and

noncash benefits, and the costs associated with the application process. The analysis presented here, while not directly modeling the individual's decision to apply for benefits, examines factors hypothesized to affect that decision process and therefore affect application and award growth experienced by the federal disability programs.

The major economic factors hypothesized to have an impact on growth in disability applications and awards that we examine in this analysis include

- *Business Cycles*: During times of economic downturn, persons with disabling health conditions may lose, or find it especially difficult to find, employment. Income from other sources may also decline. Disability benefits may become more attractive as an alternative source of income.
- *Economic Restructuring*: Changes in the types of jobs available in the economy, such as a reduction in the number of manufacturing jobs and an increase in service occupations, may affect disability applications if those who lose their jobs are unable to adapt to the market changes and to impairments that may qualify them for disability benefits.
- *State and Local Program Interactions*: State and local cash and noncash support programs offer an alternative source of income for some individuals who might otherwise qualify for disability benefits. As these programs face budget reductions or political pressure to reduce their caseloads, program administrators and beneficiaries may seek other sources of support more actively, including federal disability benefits.
- *“Supply” Changes*: In addition to demand factors, the “supply” of disability benefits will also impact program growth. The supply of benefits will be affected by changes in the eligibility criteria, changes in the implementation of the criteria, outreach efforts by SSA, and changes in the political and adjudicative environment surrounding the disability programs.

In addition to the economic factors described above, we also examine health and demographic factors that may affect disability applications and awards. Population growth and aging, the increase in female labor force participation, and changes in the prevalence of disabling

health conditions, such as AIDS/HIV, may have substantial impacts on disability application and award growth.

The analysis conducted uses a methodology that has not been previously applied to the analysis of disability program participation: “pooled” cross-section time-series analysis of state-level data. Past analyses have used either national time-series or cross-section data alone. The time-series analyses have been plagued by the difficulty of separating the effects of major program changes from the effects of other factors. The pooled methodology allows us to control for such changes to the extent that they affect all states equally, resulting in more definitive estimates for the effects of factors that vary by state. Analyses that rely on a single cross section are problematic because the effects of unmeasured determinants of program participation that vary across states (e.g., the prevalence of chronic health conditions and impairments) are confounded with the effects of measured determinants. The pooled methodology allows us to control for unmeasured determinants that vary across states, but not over time, in a very simple way.

The possibility remains that the estimated effects of state variables included in our models are confounded with the effects of supply factors that vary across states and the effects of unmeasured state variables that vary across states and over time. Nonetheless, we believe that the estimates obtained using the pooled methodology provide a much more accurate picture of the importance of the state-level factors included in the models than has been obtained previously. Further, national growth not accounted for by the state-level variables in the model is a more accurate reflection of the impact of program changes than national growth alone.

The remainder of the chapter is organized as follows: In the next section, we describe the application and award data used in the analysis and discuss the trends in disability application and award growth that occurred over the 1980 to 1994 period. This is followed by a description of the methodology employed to analyze the aggregate application and award data and define the independent variables used in the analysis. In the next four sections, we discuss the individual factors hypothesized to affect disability application and award growth. In each of these sections, we provide a description of the factor, discuss reasons why it is believed to have an impact on disability program growth, and sum-

marize the findings for the specific factor. Subsequent sections are devoted to population changes, to business cycles and economic restructuring, to other income support programs, and to supply factors.

APPLICATION AND AWARD GROWTH

In this paper we focus on application and award growth from 1980 to 1993, with a more detailed analysis of the period from 1988 to 1992. For the full period we analyzed the number of initial (medical) determinations and allowances made by state Disability Determination Services, and for the 1988–1992 period we examined applications filed and final awards. We describe significant features of these data below.²

The 1980-94 Period

The Initial Determination Data

Initial determinations are the sum of initial allowances and denials made by state Disability Determination Services (DDS) for medical reasons. We use initial determinations and initial allowances when analyzing the full period because state-level application and final award data are not available in the early part of this period. Initial determinations are lower than applications because denials for nonmedical reasons made before the initial medical determination are not counted. Initial allowances are lower than final allowances because the latter include allowances made on appeal.

One important feature of the initial determination data used for this report is that they are broken down into three program groups: those made on claims filed for DI benefits only (DI-only), those made on claims filed for both DI and SSI (concurrent), and those made on claims filed for SSI only (SSI-only). There are several reasons for analyzing these three groups, rather than analyzing total DI and total SSI initial determinations independently. First, the analysis of the three groups explicitly recognizes the overlap between the two programs. Second, concurrent initial determinations have grown at a substantially faster rate than either DI-only or SSI-only initial determinations. Third, applicants in the three groups are from three distinct groups with

respect to attachment to the labor force: DI-only applicants usually have had a strong attachment to the labor force with relatively high earnings; concurrent applicants have had a sufficiently strong attachment to the labor force to be covered by the DI program (“disability insured”), but relatively low earnings; and SSI-only applicants have had at most a limited attachment to the labor force. Finally, a large share of those receiving awards for both programs only receive SSI benefits until their five-month DI waiting period ends; once they receive DI benefits they no longer pass the SSI means test. Rupp and Scott (Chapter 4) estimate that 75 percent of concurrent awardees receive SSI benefits for less than twelve months.

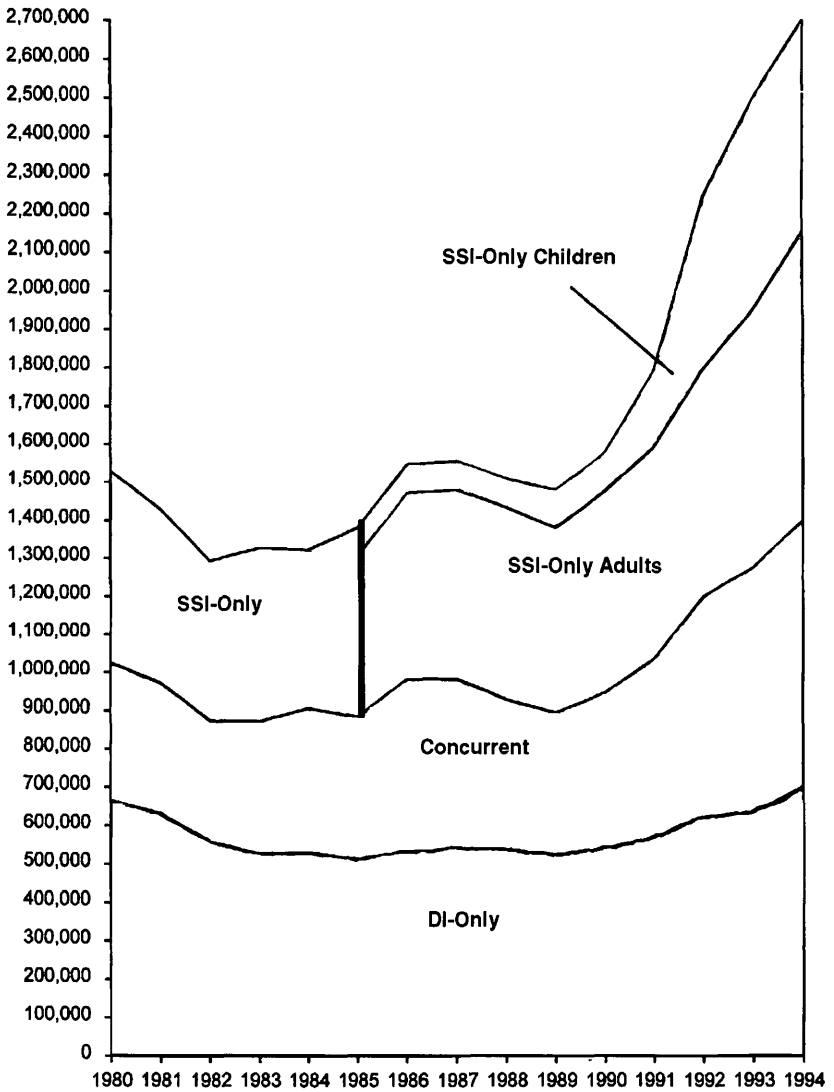
There are two important limiting features of the initial determinations data. First, they are not disaggregated by sex. As we discuss further below, data are available by sex for 1988–1992, and we found very large differences in the results for men and women. Second, SSI-only initial determinations include initial determinations for children. For analysis purposes it would be much better to separate child and adult initial determinations, but separate data were not available. We know from the national data that child growth dominates the growth in this series from 1990 on, and that the causes of this growth are primarily the 1990 Supreme Court decision in the case of *Sullivan v. Zebley* and 1991 changes in the child listings for mental disorders (GAO 1994).

Initial Determination Growth

It is useful to divide the period from 1980 to 1994 into three distinct subperiods (Exhibit 2.1). From 1980 to 1984, initial determinations declined sharply, continuing a more gradual decline that began in 1977. The decline is usually attributed to aggressive legislative and administrative efforts to reduce the size of the beneficiary population, which presumably discouraged many from applying. One notable feature of this period is that the decline occurred in the midst of a slumping economy. There was a recession in 1980, and before the economy fully recovered there was a second recession in 1981–82. If these recessions had a positive impact on initial determinations, it was masked by the response to tightening of eligibility.

The 1984 amendments to the Social Security Act reversed efforts to reduce program caseloads, and in 1985 new impairment listings that made it much less difficult to obtain benefits for mental disorders were

Exhibit 2.1 Initial Determinations for Applicants to SSA's Disability Programs, 1980-1994



SOURCE SSA, Office of Disability.

implemented. Initial determinations grew sharply from 1985 to 1986, stayed at a high level in 1987, and then declined through 1989.

Since 1989, initial determinations have grown rapidly. While growth in initial determinations for children from 1991 was greater than for adults, initial determinations for adults also grew extremely rapidly, especially in 1991 and 1992. The recession in 1990–1991 may explain some of this growth, but this is not clear from the national data because the recession of 1981–82, which was much stronger than the more recent recession, had no apparent impact.

Initial Allowance Rates

Initial allowance rates for the full period have an overall upward trend for all program groups (Exhibit 2.2). There are three notable deviations from the long-term trends: the sharp but temporary drop from 1980 to 1982, during the period of administrative tightening; the sharp increase from 1985 to 1986, after the new mental disorder listings were implemented, again followed by a decline; and a second sharp increase from 1989 to 1992, followed by a decline in 1993 and 1994.

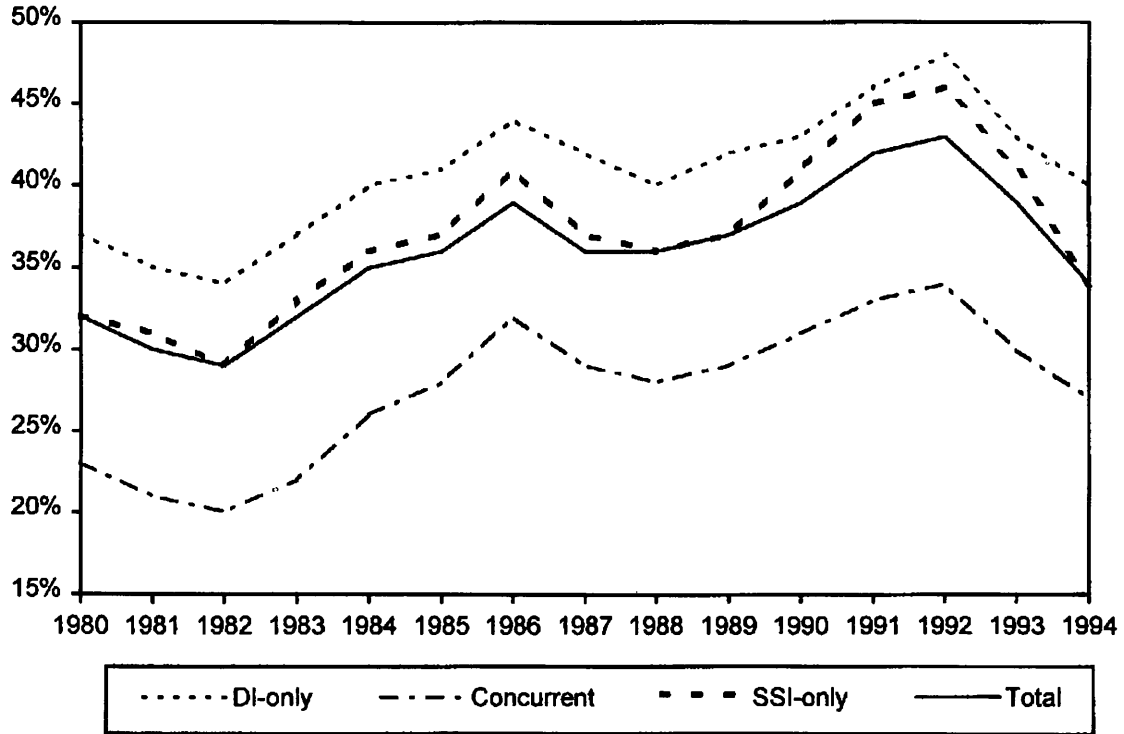
With one exception, allowance rates for the three program groups move parallel to each other throughout the period. The exception is for the SSI-only allowance rate, which grew more rapidly than the other two allowance rates from 1989 to 1991 during the dramatic increase in initial determinations for children caused by *Zebley* and the new mental impairment listings for children. As a general rule, it would seem that the dominant determinants of initial allowance rates are quite similar for all three program groups.

The 1988–1992 Period

Disability Research File Data

SSA provided state-level tabulations of applications and awards for the 1988–92 period from its new Disability Research File (DRF), a micro database on all disability applications filed from 1988 on. The tabulations for both programs include application and award tables for each year and state, cross-classified by gender, age (five age groups), and impairment. All the DRF-based estimates in this report are for those age 18–64 only, including SSI-only estimates. The classification

Exhibit 2.2 Initial Allowance Rates for Applicants to SSA's Disability Programs, 1980-1994



SOURCE: SSA, Office of Disability

of applications and awards into DI-only, concurrent, and SSI-only groups is more difficult than the classification of initial determinations and allowances because applications for the two programs are not always filed at the same time or even in the same state. For this study, the state-level DI application and award data are classified by whether the DI applicant applied for SSI, regardless of where or when (“DI-concurrent” versus “DI-only”). We did not obtain state-level SSI data disaggregated in a symmetric way (i.e., “SSI-concurrent” versus “SSI-only”). It appears likely, though, that analysis of analogously defined SSI-concurrent data would yield results similar to those reported here for DI-concurrent applications and awards. National level SSI-concurrent and SSI-only data are available. We report national trends in SSI-only applications later in this section, but omit SSI-concurrent trends because they are very similar to those in the DI-concurrent category.³

The DRF award data include allowances made at all levels, not just initial allowances. They are dated by the year the application was filed, which is often earlier than the year that the allowance was actually made. Thus, “1992 awards” means awards for applications filed in 1992.⁴ Many 1992 applications still had award decisions pending as of July, 1993, the closing date for the initial state tabulations. We subsequently analyzed updated state tabulations by gender and program, but not by age, gender, impairment, and program. Hence, we only report estimates of award models at the gender/program level, using the revised data.

Applications and awards in the DRF data are classified on the basis of the primary impairment listed in the administrative record for the highest level at which the application was considered. For the state-level analysis we used only four impairment groups in order to insure adequate numbers of cases in individual state/program/age/sex cells, but we report national trends in six categories: mental illness, mental retardation, musculoskeletal, circulatory, respiratory, and a combined category of all other impairments that includes neoplasms, nervous and sensory impairments, diseases of the endocrine system, genito-urinary conditions, diseases of the skin, blood, and digestive tract, infectious diseases, and a small number of unclassified cases. The categories used for the state-level analysis are: mental disorders (mental illness and mental retardation); musculoskeletal; infectious diseases and unclassified cases; and a residual category that we call “internal organ” disor-

ders, in which circulatory impairments, respiratory impairments, and neoplasms are the dominant disorders.

Application Growth

Application growth for the 1988 to 1992 period was very rapid (Exhibit 2.3), essentially following the pattern of initial determination growth examined previously; changes in application growth rates occur somewhat earlier than changes in initial determination growth rates because of the processing time between the filing of an application and the initial determination.

While the distribution of applications by impairment changed only moderately from 1988 to 1992, these changes reflect much larger variation in rates of application growth across categories (Exhibit 2.3). Within each program category, the fastest growing application categories are mental illness, mental retardation, and musculoskeletal, while the slowest growing categories are circulatory and respiratory illnesses.

There is also substantial variation in growth rates across subcategories of mental and musculoskeletal impairments (Exhibit 2.4). For mental disorders, growth in the addiction and affective disorder subcategories was much more rapid than in other subcategories for all program groups; SSI-only applications in the addiction disorder category increased by 200 percent over the period. Growth in the anxiety disorders subcategory was also high. Growth in the schizophrenia subcategory was remarkably low—almost no change at all for the three categories combined. In the musculoskeletal category, growth in the back disorders subcategory, which accounts for over half of all applications in the category, was much higher than in all other subcategories.

Allowance Rates

As with initial allowance rates, final allowance rates increased substantially over this period (Exhibit 2.5). The increase is observed in all impairment group categories and for all program groups; patterns of change across program groups and impairments are much less evident than application patterns. Across program groups, the change ranges from 5.9 percentage points for SSI-only to 4.6 percentage points for DI-concurrent. The increase in the allowance rate is greatest in the mental illness and circulatory impairment categories for all three pro-

Exhibit 2.3 Application Growth by Impairment, 1988 to 1992

Impairment	DI-only			DI-concurrent			SSI-only		
	1988	1992	% change	1988	1992	% change	1988	1992	% change
Number (000s)	421.2	536.8	27	400.4	609.5	52	393.8	636.0	62
Mental illness	10%	12%	45	18%	20%	69	20%	23%	79
Mental retardation	1%	2%	59	3%	9%	86	9%	9%	58
Musculoskeletal	27%	30%	41	21%	22%	63	13%	15%	80
Circulatory	17%	13%	2	12%	10%	17	10%	8%	30
Respiratory	5%	4%	5	4%	4%	25	4%	4%	44
All other	40%	39%	26	42%	40%	50	44%	41%	57

SOURCE: SSA, Disability Research File, and Lewin-VHI calculations.

NOTE: DI-only and DI-concurrent applications sum to total DI applications, but SSI-only and DI-concurrent applications do not sum to total SSI applications. All data are for adults age 18–64. See the text for further discussion.

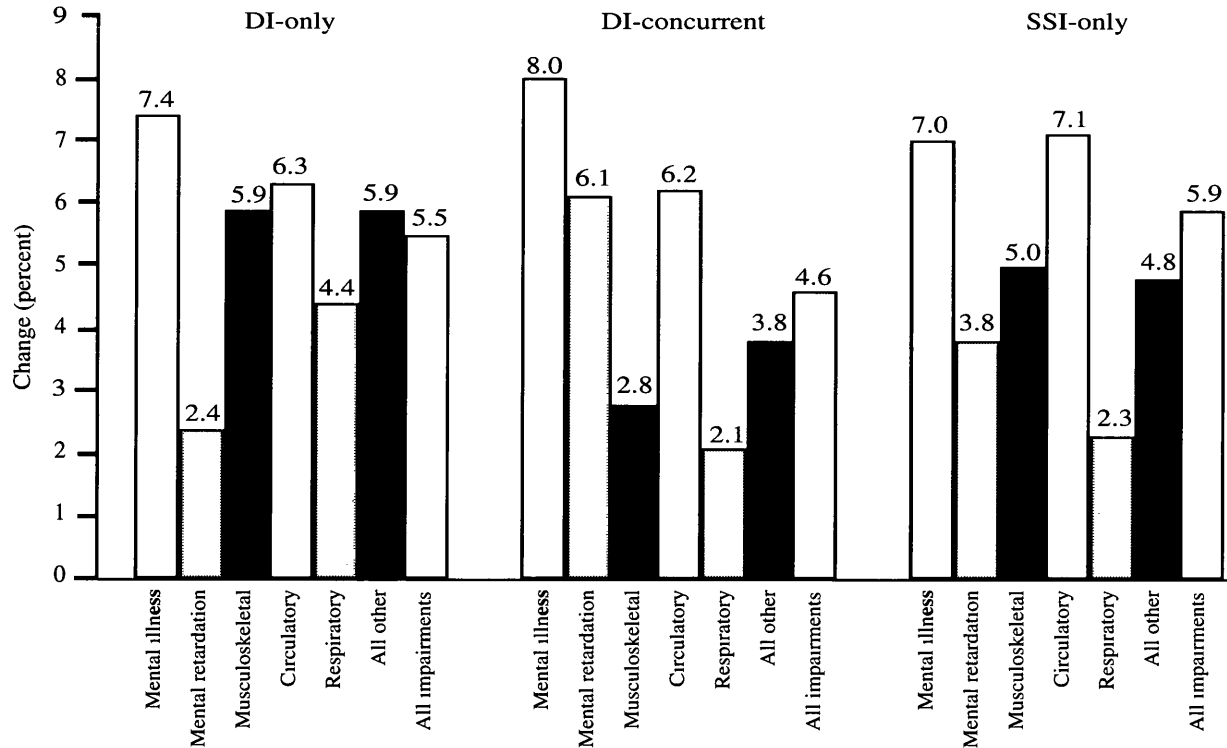
Exhibit 2.4 Application Growth in the Mental Impairment and Musculoskeletal Categories, by Specific Impairment, 1988–1992

Impairment	DI-only			DI-concurrent			SSI-only		
	1988	1992	% change	1988	1992	% change	1988	1992	% change
All mental			46			72			73
Organic	15%	13%	25	8%	8%	57	6%	6%	66
Schizophrenia	16%	11%	1	22%	12%	−4	20%	12%	4
Affective	37%	44%	72	27%	32%	105	20%	25%	112
Anxiety	10%	11%	48	7%	7%	83	6%	6%	83
Addiction	5%	6%	75	12%	18%	151	11%	18%	200
Mental retardation	10%	11%	59	16%	17%	86	30%	28%	58
Other mental	7%	4%	14	8%	6%	29	7%	5%	31
Musculoskeletal			41			63			80
Back	58%	61%	47	57%	61%	76	46%	53%	105
Other	42%	39%	32	43%	39%	47	54%	47%	59

SOURCE: SSA, Disability Research File, and Lewin-VHI calculations.

NOTE: DI-only and DI-concurrent applications sum to total DI applications, but SSI-only and DI-concurrent applications do not sum to total SSI applications. All data are for adults age 18–64. See the text for further discussion.

Exhibit 2.5 Change in Final Allowance Rates by Impairment, 1988 to 1991



SOURCE: SSA, Disability Research File, and Lewin-VHI calculations. All data are for adults age 18–64.

gram groups. For other impairment groups, the change varies considerably across program groups.

While allowance rate increases were greatest in the mental illness category in general, increases varied substantially across subcategories (Exhibit 2.6). The largest increases by far were for addiction disorders—approximately 20 percentage points in each of the three program groups. The next highest increases were for anxiety disorders—approximately 10 percentage points in each program group.

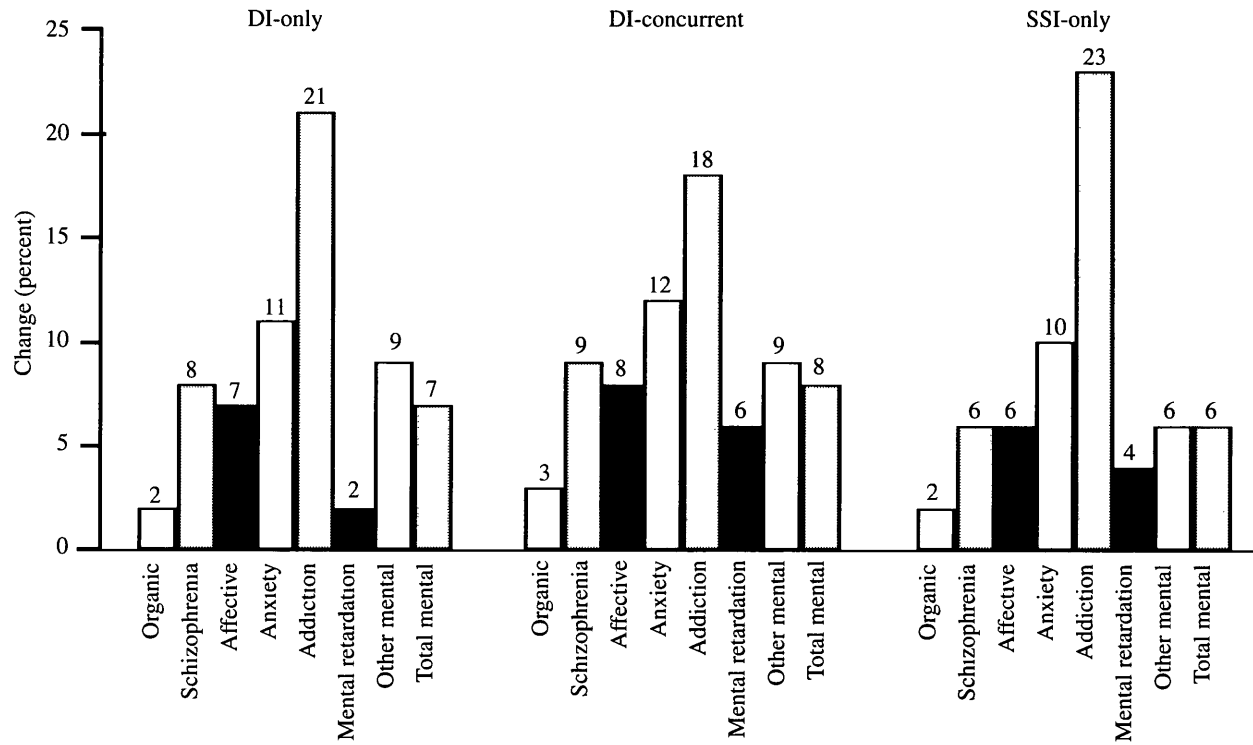
METHODOLOGY

The findings reported on here are primarily based on two sets of econometric models that were estimated with the state-level data described in the previous section. The first set uses 1980–1993 initial determination and allowance data, and the second set uses the 1988–1992 application and award data. The econometric methodology used is essentially the same for both sets. We describe this methodology below, discuss the main explanatory variables used in the analysis, and describe simulations conducted with the estimated models in order to interpret the findings. A more technical description of the econometric methodology appears in the appendix to this chapter, along with selected regression and simulation results.

The findings reported here also draw on several other activities we conducted in order to better design, interpret, and validate the econometric analysis. These include

- a national-level actuarial analysis of the impact of growth and changes in the age/sex distribution of the disability insured population on DI application and award growth
- a substantial review of relevant literature
- interviews with a series of government and academic experts on disability
- interviews with 17 state Disability Determination Service administrators

Exhibit 2.6 Change in Allowance Rate by Mental Disorder, 1988 to 1991



SOURCE: SSA, Disability Research File, and Lewin-VHI calculations. All data are for adults age 18–64.

- case studies of application and award growth in California, Florida, New York, Texas, and Michigan

The findings of the case studies are reported more fully in Chapter 8.

Econometric Model

For the 1980–1993 analysis we estimated a single initial determination and allowance rate equation for each of three program groups: DI-only, concurrent, and SSI-only.⁵ The dependent variable in each equation is the logarithm of either initial determinations per capita or the initial allowance rate (initial allowances divided by initial determinations). In assessing the findings from this analysis, it is important to keep in mind that children are included in the SSI-only category.

For the 1988–1992 analysis we estimated forty application equations for each program (DI and SSI). The dependent variable in each equation is the logarithm of either an application or incidence rate for a specific age/sex/impairment group (five age categories, two sex categories, and four impairment categories). For DI, we also estimated separate DI-only and DI-concurrent equations. For the award analysis, we estimated male and female equations for each program group.

It is important to keep in mind differences in the dependent variable data when comparing the findings from the analyses of the two periods. Three critical differences are 1) the 1980–1993 data for SSI-only include children, while the SSI data for 1988–1992 do not; 2) the dynamics of the series are different in a systematic way because of the processing lag between the date of application filing and the date the initial determinations are made; and 3) awards for the 1988–1992 analysis include allowances made at all levels, whereas those for the 1980–1993 analysis refer to initial allowances only.

Explanatory Variables

Explanatory variables that appear in the final models include

- the expected application rate, based on 1990 national application rates by age group and the age-distribution of the state's population in the current year—to capture the effect of the aging of the population
- the unemployment rate—to represent the business cycle

- the labor force participation rate—to capture the negative, cyclical effect of discouraged workers leaving the labor force during recessions. For DI, this variable may also capture the long-term positive effect of growth in the share of women who are disability-insured
- the share of employment in manufacturing—to capture the effect of economic restructuring
- GA program cuts—to proxy for the effects of state and local shifting efforts (especially for SSI)
- the poverty rate—to capture changes in poverty that are not picked up by other variables in the model
- the mean AFDC payment for a two-person household relative to mean earnings—to capture the value of AFDC benefits
- the mean SSI payment, including state supplement payments, relative to mean earnings—to capture the value of SSI benefits
- AIDS/HIV incidence—to account for the effects of the AIDS epidemic on the incidence and prevalence of disability
- the number of immigrants granted legal alien status under the Immigration Reform and Control Act (IRCA)—unlike most other immigrants, those granted legal alien status under IRCA were immediately eligible to apply for SSI
- the percentage of children living in single-family homes—to proxy for the effects of the number of households headed by single parents on applications and awards (particularly for SSI)
- a dummy variable for each year—to control for national factors

There are two important general differences between the explanatory variable specifications used for the two sets of analyses. First, for the 1988–1992 analysis, which was conducted first, we related current-year changes in explanatory variables to current-year changes in application and incidence rates. For the 1980–1993 analysis we also examined the impact of prior year (“lagged”) changes in the explanatory variables on current-year initial determinations and allowance rates and found substantial lagged impacts for two variables: the unemployment rate and the labor force participation rate. Second, the expected

application rate was used only in the 1980–1993 analysis in order to capture effects of changes in the age distribution of the population. In the 1988–1992 analysis these effects were captured through disaggregation of the analysis by age (as well as sex and impairment).

Other differences in the explanatory variables for the two sets of analyses are due to data availability and statistical significance. We found that several explanatory variables that were significant for the longer period were not significant in the 1988–1992 analysis, apparently because the variability of these variables was low during the shorter period.

Simulations

In order to interpret the findings from the econometric analyses, we used the estimated models to conduct a number of counterfactual simulations. For the 1980–1993 analysis, we simulated the impact of all explanatory variables in the model on initial determinations and allowance rates holding all “national factors” (the factors represented by the year variables) constant at their 1989 levels. Comparisons of the simulated and actual series show how much of the historical variation in these series is accounted for by the state-level variables and how much is left unaccounted for—due to national factors as well as to state-level factors that were not fully captured in the analysis. For initial determinations, we also compare the simulated and actual series to expected initial determinations; i.e., to the estimate of the number of applications expected based on national application rates by program and age for 1990 and the current year population in the state by age.

For the 1988–1992 analysis, we simulated the impact of the 1988–1992 change in each individual explanatory variable on application and award growth, holding all other variables constant at their 1988 levels. This was supplemented with the findings from the national-level actuarial analysis of the disability-insured population to get estimates of the marginal impact of the growth in the share of the working-age population (especially women) that is disability-insured.

POPULATION CHANGES

Population growth

Changes in the size and age/gender composition of the population provide the simplest and most direct explanation of changes in the number of DI and SSI applications and awards. The size of the working-age “SSA area” population grew steadily from 1975 to 1992 and is expected to continue growing steadily in the near future. The baby boom generation, born between 1946 and 1964, was still entering the working-age population in 1975. As it did, the average age of the working-age population declined, but this decline was eventually reversed as the generation aged. Both the growth in the size of the working-age population and the aging of the baby boom generation have contributed substantially to recent growth in applications and awards for SSA’s disability programs.

The SSA area population between the ages of 15 and 64 grew at an average annual rate of 1.1 percent from 1975 to 1992, but the growth in recent years has been much slower than in earlier years. From 1975 to 1980 the average annual growth rate was 1.5 percent, while it was only 0.6 percent from 1988 to 1992. During the later period, however, changes in the age distribution of the working-age population substantially offset the effect of slowing population growth.

The expected initial determination variables used in the 1980–1993 analysis are intended to capture the combined effects of growth and aging of the population on initial determinations. The contribution of these variables to the acceleration in application and award growth experienced from 1988 on can be seen by comparing their annual growth for the latter period to their annual growth in the 1980–1988 period. For all three program groups, this variable grows at a faster annual rate from 1988 to 1993 than from 1980 to 1988. For DI-only, the annual rate of growth increases from 0.8 percent to 1.3 percent; for concurrent, the increase is from 1.3 to 1.4 percent; and for SSI-only, the increase is from 0.6 to 1.2 percent. The very small increase for the concurrent category is apparently explained by the fact that a relatively large share of applicants in the concurrent category are young. Thus, these factors help explain the acceleration in growth in the DI-only and

SSI-only categories, but not in the concurrent category. It should also be noted that the acceleration in the growth rates of these variables themselves occurred before 1988, and thus does not coincide with the acceleration of applications that began in 1989.

Target populations

The number of DI and SSI applications and awards should be influenced by changes in the size of the population eligible for either or both programs, i.e., each program's target population. The most important eligibility factors are the presence of qualifying disabilities and economic eligibility. The disability criteria are identical for the two programs, while economic eligibility is tied to disability-insured status for DI and to a means test for SSI. For simplicity of discussion, those satisfying the SSI means test will be called "poor" below, although the official poverty population is an imperfect proxy for SSI eligibility. Our focus here is on exogenous changes in the size of the relevant target populations given program rules; we defer the discussion of supply factors affecting the size and composition of the eligible population until later.

The three program groups can be visualized as being determined by various combinations of the target populations defined by disability-insured status, meeting the SSI means test, and having a qualifying disability. To be eligible for DI, a person has to satisfy the insured status and disability requirements. SSI eligibility requires meeting the means test and the disability requirement. Persons with qualifying disabilities who are disability-insured but not poor are eligible for DI only, those who are poor qualify for both programs (concurrent eligibility), and those who are poor but not disability insured are eligible for SSI only.

Existing data do not permit observation of trends in the three main target populations directly, and indeed not even cross-sectional data are available on a reasonable proxy of the population satisfying the disability criteria in the general population. Therefore we must rely on an item-by-item examination of evidence on trends in these three target populations.

Based on estimates from SSA's actuaries, the share of the population that is disability-insured grew at an average annual rate of 1.2 percent from 1975 to 1992. The rate of growth was much higher for women

(2.6 percent) than for men (0.2 percent), reflecting growth of female labor force participation rates. The narrowing of gender differences also suggests that this source of growth is approaching exhaustion.

We performed an actuarial analysis of the contribution of growth and changes in the age and gender distribution of the disability insured population on DI applications from 1988 to 1992 and found an average annual contribution of 2.1 percentage points. This is almost 0.8 percentage points greater than the estimated impact of population growth and aging alone, with almost all of the added contribution due to changes in the disability-insured status of women. Results for awards were almost identical. It is important to note that the growth in the proportion of the disability-insured population suggests an increase in the share of SSI eligibles concurrently qualifying for DI, thereby depressing the growth of the SSI-only group, particularly for women.

Change in the age and gender composition of the disability-insured population will also have an impact on application growth in specific impairment categories. The large increase in the proportion of the population in their thirties and forties suggests a corresponding increase in disability applications based on impairments most likely to occur in middle age, and less growth for impairments that typically occur either earlier or later in life. Our actuarial analysis of DI application growth from 1988 to 1992 found that growth due to change in the disability-insured population was greatest in the musculoskeletal impairment category, and smallest for the internal organ category. These findings are a result of the fact that applications based on musculoskeletal impairment (most commonly back strains and injuries) represent a larger share of applications among younger and middle-aged applicants than among older applicants. Applications in internal organ categories (heart disease, respiratory disease, cancer, etc.) are a larger share of applications from older persons, which partially accounts for the relatively slow growth rate in the internal organ category.

From 1979 to 1992 the poverty rate for the working-age population grew at an average annual rate of 1.6 percent. Growth was highest for persons age 18 to 24 and in the subperiods 1979–1983 and 1988–1992, both periods of slow economic growth or even decline; in the latter period, the average annual growth rate of the pretransfer poverty rate was 3.5 percent. If we assume that increases in the poverty rate directly translate into increases in SSI applications on top of the effects of pop-

ulation growth and aging, these factors together account for 4.7 percentage points of the average annual growth in SSI applications over this period, or about 45 percent of the average annual growth of 10.5 percent.

We included the poverty rate as an explanatory variable in our SSI regressions, but found in general that it did not have a statistically significant effect on applications and awards; marginally significant, positive coefficients were obtained in analysis of initial determination data for the 1980–1987 subperiod alone. The weak findings might be attributable to substantial measurement errors in state-level poverty rate estimates. Another explanation is that important determinants of the poverty rate, especially unemployment and the age distribution of the population, are included separately in all of the analyses, so only variation in the poverty rate that is not explained by other explanatory variables is being used to identify the impact of poverty.

One of the other determinants of poverty is the growth in the number of female-headed households. We included the percent of children living with only one parent to capture this factor. More generally, this variable serves as a proxy for changes in family structure that could have an impact on applications, especially declines in marriage rates that have left many individuals with limited family sources of financial, in-kind, and emotional support. In the 1988–1992 analysis this variable was very significant for the SSI and DI-concurrent equations for both men and women. We found that this variable accounts for about 5 percent of annual SSI application growth during the period. Effects were somewhat larger for women than for men, were larger for younger age groups than for older age groups, and were concentrated in the mental disorders category. We also found strong evidence of a positive impact on initial determinations in the SSI-only and concurrent categories.⁶

These findings suggest that declines in the availability of financial, in-kind, and emotional support from spouses are making a substantial contribution to growth in applications and awards. They also help explain the rapid growth in the mental impairment category. A negative association between severe mental illness and marriage has been documented in the mental health literature; empirical evidence shows that individuals who are mentally ill are less likely to marry than others, and are more likely to get divorced if they do marry (see Bartel and Taubman 1986). Thus, the prevalence of mental illness is relatively

high in the population that is “on the margin” of marriage, so declines in marriage may result in more applications from this group. It could also be that expanded availability of disability benefits for those with a mental illness has contributed to the decline in marriage rates, by offering an alternative source of support to some who would otherwise be married.

The data available to study the prevalence of disabling health conditions is limited, especially for analyzing trends. Long-term trends in the prevalence of disabling conditions may be influencing long-term growth in applications and awards (in some cases negatively), but with one exception (AIDS/HIV) we did not find convincing evidence of health trends explaining the recent acceleration of application and award growth. The incidence of AIDS/HIV grew at an annual rate of 9.3 percent from 1988 to 1992. Our regression estimates for 1988–1992 along with counts of the number of applications in the AIDS/HIV impairment category suggest that AIDS/HIV accounts for between 0.6 and 0.9 percentage points of both DI and SSI application growth over this period.

SSI applications from legal aliens and those living in the United States under the color of law grew much more rapidly than those from citizens from 1988 to 1992—at an average annual rate of 17.4 percent versus 9.8 percent for citizens—although the share of all applications that are from this group is still small (6.8 percent in 1992). We previously have hypothesized that the Immigration Reform and Control Act of 1986 (IRCA) explained the relatively rapid growth among applications from this population. National time-series of IRCA legalizations show a striking resemblance to national time-series for SSI applications from legal aliens (Lewin-VHI 1994). Because IRCA legalizations are concentrated in a relatively few states, we expected that any impact of IRCA legalizations would be clearly distinguished in the application and award analysis for 1988–1992. In fact, however, the findings were very weak. To verify the econometric findings, we asked SSA to tabulate the number of annual SSI awards to IRCA immigrants in a 10 percent sample of all SSI applications for the period from 1989 (the first year of IRCA legalizations) to 1993. The number identified as IRCA immigrants turned out to be very small—peaking at an estimated 3,200 of the 88,500 applications from all legal aliens in 1993.⁷ Thus, the rapid growth in legal alien applications over this period appears to be primar-

ily due to the same factors that are behind growth in applications from citizens. While applications from legal aliens grew at a somewhat faster rate than those from citizens, evidence from the case studies suggests that this is because the recession had a larger impact on legal aliens than on citizens.

Thus, IRCA is apparently not responsible for the relatively rapid growth of applications from noncitizens. In the analysis of the 1980–1993 data we examined whether growth in the number of legalized immigrants who have satisfied the three-year waiting period could explain this phenomenon, but again found no significant results. Evidence from the case studies (Chapter 9) suggests that the recession had a much larger impact on the immigrant population than on citizens, but we have not tested this hypothesis empirically. It is also known that middleman fraud has played a role in helping immigrants in some areas obtain awards, but the extent of the fraud is not known.⁸

An important feature of our findings concerning population factors is that they explain why growth in concurrent applications and awards has been greater than growth in applications and awards for either program alone, and especially why concurrent application and award growth has greatly exceeded that in the DI-only category. Female and young DI applicants are more likely to meet the SSI means test than older male DI applicants, and growth in the disability insured population has been greatest for women and for young to middle-age groups. The effects of poverty and changes in family structure have roughly equal impacts on concurrent and SSI-only applications and awards, but at most small impacts on DI-only applications and awards. Finally, the effect of AIDS/HIV on concurrent applications and awards has been substantially greater than its effects on those in either the DI-only or SSI-only categories.

BUSINESS CYCLES AND ECONOMIC RESTRUCTURING

Regression Estimates of Business Cycle Effects

There have been numerous previous econometric studies estimating the effect of the business cycle on DI applications, awards, and case-

loads. Most of the previous studies used aggregate time-series methods, although some work has been conducted using state- or individual-level cross-sectional estimates (see Exhibit 1.2 in Chapter 1, pp. 15–16). The point estimates vary across individual studies, but no study finds substantial effects in a direction opposite from the predictions of economic theory. Previous studies have suffered from various specification problems, low statistical power, or both.

One of the key results from our work using annual pooled cross-section/time-series data for states relates to our estimates of business cycle effects. Our ability to control for permanent differences among the states and to eliminate the confounding effect of national changes endemic to time-series studies makes the results obtained from our analysis methodologically much stronger and more credible. Strong results were found in both the 1980–1993 analysis of initial determinations and the 1988–1992 analysis of applications (see Exhibit 1.2 in Chapter 1). In general we found stronger effects for DI than for SSI and for initial determinations and applications than for initial allowances and final awards. The estimated effects on allowance rates are negative.

In the 1980–1993 analysis of initial determinations we found that the impact of a change in unemployment begins in the year of the change, but is greatest two years after the change. Such “lagged” effects are presumably greater for initial determinations than for applications because of the substantial lag between filing and the initial determination, but nonetheless could be very significant. We did not examine lagged effects in the 1988–1992 application analysis, and this may explain the somewhat stronger findings in the 1980–1993 analysis.

We were also able to extend our DI initial determination analysis back to 1976, and found remarkably stable unemployment effects for DI in each of three subperiods: 1976–1979, 1980–1987, and 1988–1993 (see the appendix to this chapter). We also found that unemployment effects for SSI-only initial determinations were essentially as large as for DI-only and concurrent initial determinations in the 1980–1987 period, whereas we found no unemployment effect for SSI-only initial determinations in the 1988–1993 period. The difference may be related to the fact that the SSI-only data include children, and growth in this category during the latter period is dominated by growth for children.

In the initial determination analysis we also found evidence of a “discouraged worker” effect—holding the unemployment rate constant, a decline in labor force participation as individuals give up their search for work during a recession is associated with a significant increase in initial determinations.

Simulated Business Cycle Effects

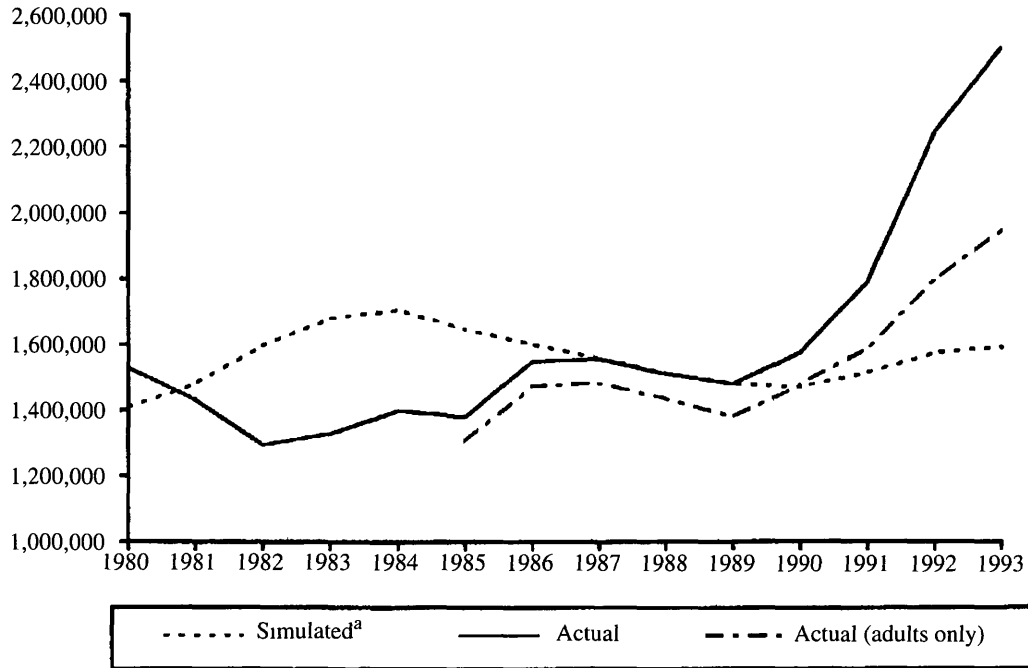
One especially notable finding in the simulations for the 1980–1993 period is that the short recession of 1980 combined with the more severe recession of 1981–1982 had a large impact on initial determinations during that period, even though initial determinations declined (Exhibit 2.7).⁹

Tightening of eligibility standards during that period (see p. 63, *The Supply of Benefits*) evidently discouraged applications sufficiently to more than offset the impact of the recession. According to the simulations, the effect of the 1981–1982 recession was much larger than the substantial simulated effect for the 1990–1991 recession.

Based on simulations using the 1988–1992 model estimates, changes in the unemployment rate over this period account for substantial fractions of the total growth in applications, especially for DI. Changes in unemployment account for 1.7 percentage points of the 8.9 percentage point annual growth in total DI applications, a 19 percent share. For SSI, changes in the unemployment rate account for 1.1 percentage points of the 10.5 percentage point annual growth rate, a 10 percent share.

Changes in the unemployment rate account for much more of the growth in DI and SSI applications for men than for women from 1988 to 1992. For example, the unemployment rate accounts for 2.2 percentage points of the 7.9 percentage point annual increase in total DI applications by men, a 28 percent share, but only 0.9 percentage points of the 10.5 percentage point annual increase in total DI applications by women, a 9 percent share. One reason changes in the unemployment rate account for a greater share of the total growth in DI applications by men is because the models do not take into account changes in the disability-insured population. It is likely that this omission results in an underestimate of the effect of the unemployment rate on DI applications by women.

Exhibit 2.7 Actual and Simulated Initial Determinations for DI and SSI, 1980-1993



SOURCE: Lewin-VHI analysis of SSA data on initial disability determinations.

^aThe simulated series is based on regression results reported in Exhibit IV.A 1, and shows the path initial determinations would have followed had they been affected solely by state-level factors. The actual and simulated series are normalized to equal one another in 1989.

In award simulations for 1988–1992, the unemployment rate accounts for 1.0 percentage points of the 10.0 percent annual growth of DI awards and 0.7 percentage points of the 12.0 percent annual growth of SSI awards, respectively; i.e., it accounts for 10 percent of DI award growth and 6 percent of SSI growth. These findings, and the findings from the 1980–1993 analysis of initial allowances, indicate that the marginal applicant who is induced to apply by a recession is less likely to obtain an award than the average applicant. Put another way, the recessions have a *negative* effect on allowance rates. This finding is especially important in view of the large *increases* in allowance rates that were observed during and shortly after the 1990–1991 recession. We return to this point later.

The findings from the five case studies add credibility to the econometric findings about business cycles, suggesting, if anything, that they are conservative. It is clear from the case studies that subtleties of business cycles not captured by the unemployment rate are relevant to a recession's impact—the industrial distribution of job losses, the perceived permanence of layoffs, and key characteristics of workers who lose their jobs (age, sex, prior earnings, skills, etc.). In effect, the unemployment rate is a crude proxy for the business cycle. As is well known by statisticians, estimated effects that rely on proxy variables tend to understate the effect of the factor they are meant to capture.

We know relatively little about the mechanisms through which business cycles have an impact on program growth. We cannot determine, for instance, the extent to which our results reflect the effects of state and local fiscal responses to recessions as opposed to job losses and pay reductions among workers with serious disabilities or spouses of persons with serious disabilities. The weaker findings for SSI-only applications and awards suggest, however, that much of the effect is due to job losses. Findings from the case studies support that interpretation as well, but they also provide evidence of a significant role for state and local fiscal responses to revenue losses, a subject we will return to later.

The dynamic aspects of business cycle impacts are also poorly understood. The considerable lagged effects found in the initial determination analysis suggest that many individuals who are induced to apply by a recession only do so after an extensive search for other sources of support.

Economic Restructuring

Many have hypothesized that economic restructuring—the replacement of high-paying manufacturing jobs with relatively low-paying service sector jobs—has had an impact on application and award growth. The short-term effect of economic restructuring is thought to be positive, because disabled workers who lose their manufacturing jobs may choose to apply for disability benefits rather than find new work in the service sector. The long-term effect may be negative, however, because service sector workers are less susceptible to disabling injuries and illnesses (see Loprest, Rupp, and Sandell 1995). The long-term effect may vary by impairment group; for instance, some have suggested that it is negative for physical impairments but positive for mental impairments.

We have previously speculated that the large business cycle effects found in the 1988–1992 application analysis may partly reflect the short-term, positive impact of economic restructuring (Lewin-VHI 1995b). In the 1980–1993 initial determination analysis we tried to capture this effect using the percent of employment in manufacturing as an additional explanatory variable. We did find the expected negative effect for the DI-only category, but it was small and not replicated for other program categories. We also developed two indices of job-related injuries and illnesses to capture the longer-term impact of economic restructuring, but found no significant results. While it may be that measurement and other specification errors account for the insignificant findings, it would appear that business cycle effects overwhelm the effects of economic restructuring in the periods we have examined.

OTHER SUPPORT PROGRAMS

The Potential for Program Interactions

Just as economic theory suggests that the relative value of disability cash benefits to potential earnings affects the decision to apply, it is reasonable to expect that the availability and relative value of benefits through other programs should also affect the decision to apply. This is

an important topic, particularly in light of substantial secular changes in the relative value of public benefits such as General Assistance (GA—the generic term for welfare programs funded entirely by state and local governments), Aid to Families with Dependent Children (AFDC—a state/federal program that primarily provides support for low-income single-parent households), Medicaid, and Medicare.

Other programs can be classified as either “substitutes” or “complements” for DI and/or SSI, in the economic sense of these terms. Substitute programs are those for which an expansion in the value of benefits reduces applications and awards for the SSA programs; benefit expansion for complementary programs increases applications and awards. GA and AFDC are examples of substitute programs for SSI; individuals who receive SSI benefits are not eligible for GA or AFDC. Tightening of eligibility rules and reductions in benefits for GA or AFDC are expected to increase SSI participation. State supplements to SSI are clear complements to SSI; reductions in state supplements are expected to reduce SSI participation.

Medicaid and Medicare are also complements of SSI and DI, respectively; most SSI recipients are automatically eligible for Medicaid, while DI beneficiaries receive Medicare coverage after a two-year waiting period. Increases in the cash value of Medicaid and Medicare benefits increase the relative attractiveness of the disability programs, and hence the demand for their benefits. Changes in eligibility rules for other programs can change the degree to which they are substitutes or complements for the SSA disability programs. For example, expansion of Medicaid to individuals who are not sufficiently poor to qualify for SSI, or the introduction of universal health insurance coverage, would reduce or eliminate the complementarity between medical insurance and income support programs.

General Assistance and Aid to Families with Dependent Children

In our state-level analysis for the 1988 to 1992 period we found strong evidence of effects of cuts in state and local GA programs on both applications and awards. GA cuts in seven states and the District of Columbia had highly significant, positive effects on SSI applications and awards for both men and women, and for concurrent applications and awards among men. Estimated effects on applications and awards

were nearly identical, and the elasticities were often large, particularly for younger men, and especially for applications and awards in the mental disorders category. We later found similar results for initial determinations in both the 1980–1987 and 1988–1993 periods. For the 1980–1987 period we also found evidence that reductions in AFDC benefits increase SSI-only initial determinations, but these findings were not replicated in the 1988–1993 analysis. The lack of findings for the later period may simply reflect a lack of large changes in AFDC benefits, the dominance of growth in initial determinations for children, and/or the confounding effects of *Zebley* and the new mental disorder listings for children.

These findings are the only direct econometric evidence we are aware of demonstrating that changes in other income and in-kind transfer programs have an impact on SSI applications and awards, but the lack of evidence may simply reflect the difficulty of measuring such effects. The lack of evidence may also reflect a widely prevailing view that anyone who is eligible for SSI as well as either AFDC or GA would already have applied for SSI because SSI benefits are greater. As several welfare administrators and other welfare experts have told us, however, this reasoning neglects the fact that the SSI application and appeals process is prohibitively difficult for many who can much more readily qualify for GA or AFDC—especially those with mental disorders.

A primary objective of the case studies was to learn more about the impact of changes in state and local welfare programs on SSI applications and awards. As described in detail in Chapter 8 of this volume, we found that cuts in GA benefits during the 1988–1992 period represent only a fraction of state and local efforts to shift welfare recipients—primarily GA recipients—onto SSI. It appears that the econometric models may substantially understate the impact of the combination of GA cuts and other state and local shifting efforts. The reason for this is methodologically the same as the reason that our business cycle estimates may understate the magnitude of business cycle effects: the GA cuts variable used for the analysis is a crude proxy for general state and local efforts; its estimated coefficient probably understates the impacts of these changes because it fails to capture the effects of shifting efforts that don't involve cuts in GA benefits.

While the findings from the case studies and econometric analysis provide much less support for the impact of AFDC benefit changes on SSI, the AFDC findings for 1980–1987 along with the long-term decline in the value of AFDC benefits relative to SSI benefits (from 1975 to 1992 the level of median AFDC benefits for a family of four declined by 37 percent relative to the value of federal SSI benefits for couples), and evidence that a substantial share of AFDC mothers have disabilities (see Adler 1993), suggest that AFDC program changes have contributed to long-term SSI application and award growth. Proposed future reforms to both AFDC and GA programs could have a substantial positive impact on SSI caseloads.

As stated above, the econometric analysis for the 1988–1992 period shows that GA cuts had an especially strong impact on applications and awards in the mental impairment category. Evidence from our interviews of DDS administrators and the case studies supports this finding and suggests that, in general, state and local shifting efforts over this period can help explain the exceptionally rapid application and award growth in the mental impairment categories. Several people we interviewed argued that the success of state and local shifting efforts would not have been possible were it not for the changes in eligibility requirements for mental disorders.

State SSI Supplements

Many states supplement federal SSI benefits with a state payment. We expect increases in total benefits (state plus federal) relative to earnings to increase applications. In the 1980–1993 analysis of initial determinations, we used the sum of the federal payment and state supplements to individuals living independently divided by earnings per worker in the state as an explanatory variable in the SSI-only and concurrent initial determination equations.

The findings were quite strong. We estimate that the elasticity of SSI-only initial determinations with respect to the sum of the state and federal benefit is 0.8. This estimate is very significant statistically and is robust to the subperiod used.¹⁰ For concurrent initial determinations the point estimate of the elasticity is smaller (0.4) and is less robust to the choice of subperiod, but is still significant.¹¹

Medicaid

We also attempted to estimate the impact of the rising value of Medicaid benefits on SSI applications and awards, but were not successful in identifying an impact. It seems likely, however, that the absence of a positive finding reflects the difficulty of measuring the value of the benefits. Welfare administrators and other experts generally attest to the importance of Medicaid benefits to SSI applicants, and recent research on the related topics of “continuation of coverage” mandates (Gruber and Madrian 1993), and the effects of Medicaid on AFDC caseloads (Moffit and Wolfe 1992; Congressional Budget Office 1993; Yelowitz 1994) confirm the importance of medical benefits to labor force and program participation decisions. In addition, as discussed further in Chapter 9, the growing burden of health care costs for indigent patients on state and local governments and health care providers is an important factor behind state and local shifting efforts.

Medicaid reform or general health care reform could have a significant impact on SSI caseloads. Medicaid block grants, which would result in federal payments to states that are not tied directly to Medicaid enrollment, would significantly reduce the incentives to shift state and local welfare recipients onto SSI. Cutbacks in Medicaid benefits could also have a negative effect. Making Medicaid benefits available to disabled persons independently of SSI, or otherwise increasing their access to health insurance, would also be likely to reduce SSI caseload growth.

THE SUPPLY OF BENEFITS

Features of SSA’s disability programs such as the real value of benefits, legislative and administrative actions affecting eligibility determination, work incentive provisions, and SSA outreach activities might substantially affect applications and awards. Other supply factors, such as court decisions on appealed cases, also play a role. Research on the effects of these factors is extremely difficult to perform for three reasons: there is only limited variation in the data; most changes that do occur tend to affect the whole program, precluding natural comparison

groups; and it is extremely difficult to disentangle the effect of programmatic factors from potential confounding factors.

In this section we first briefly discuss the contributions of our work to existing literature on the impact of increases in the value of benefits and on exogenous shifts in denial rates. We then turn to a more in-depth discussion of supply changes that occurred from 1980 to 1993 and evidence from our simulations concerning their collective impact.

The Value of Benefits

Previous econometric work has addressed some programmatic factors. Most important, there is a considerable body of econometric work since the pioneering work of Parsons (1980) and Leonard (1984) focusing on the effect of wage replacement rates on labor force and disability program participation. This body of econometric work has been plagued by serious identification problems, and has produced a wide range of estimates. An alternative quasi-experimental approach using rejected applicants as a comparison group (Bound 1989) raised fundamental questions about the validity of these estimates, but relies on somewhat questionable assumptions as well.

With one exception, we did not analyze the impact of changes in the value of benefits because benefits only change at the federal level, i.e., the value of federal benefits is a national factor that does not vary at the state level. The exception is the estimated positive effect on SSI initial determinations of the sum of federal and state SSI benefits relative to earnings, discussed in the previous section. The effect estimated is identified only through variation in the value of the state benefit and variation in earnings. Hence, caution should be exercised in using it to infer the effect of a change in the federal benefit on initial determinations.

Denial Rates

Economic theory suggests that the expected probability of award and future benefit streams should affect applications, and therefore changed eligibility rules and their enforcement might be important in determining the number of applicants. Two pioneering studies on this issue used state-level analysis for the 1970s that is similar methodolog-

ically to our own analysis for later years. These studies focused on the impact of changes in initial denial rates on DI applications and labor force participation, taking advantage of what appears to have been exogenous changes in state denial rates from 1978 to 1979. Parsons (1991) estimated that a 10 percent administrative increase in denial rates reduces applications by 4.5 percent. One limitation of Parson's work is that he did not control for changes in unemployment or demographics at the state level during this period. Gruber and Kubik (1995) use data from the same period to estimate the impact of denial rate changes on labor force participation of individuals with chronic health conditions. They did control for demographic change and the unemployment rate, and also found significant effects. We were able to replicate Parsons' findings exactly, and to test the robustness of his results in models in which we also controlled for demographic and business cycle effects. We found that taking these factors into account reduces the estimated effect of denial rate increases by 50 percent, but the estimated effects were still very significant. We also assessed the validity of Parsons' assumption that reductions in the denial rate from 1977 to 1978 reflected state DDS tightening of eligibility standards; if reductions in denial rates were due to other factors, then it is not clear that potential applicants and advocates would regard them to be indicators of changes in eligibility standards. We found that lagged denial rates had only very weak, insignificant coefficients in DI initial determination models estimated for later years, which is consistent with Parsons' assumption about the reasons for denial rate changes from 1977 to 1978.

Our econometric analysis of state data did not provide other direct evidence of program supply effects, by design. Despite this, it is possible to make some inferences concerning the effects of supply changes indirectly. In the remainder of this section we develop such inferences about supply changes that have occurred since 1980.

Analysis of Supply Changes, 1980-89

Description of the Changes

The 1980 and 1981 Amendments to the Social Security Act reduced DI benefits for some workers, introduced new work incentive provisions for DI and SSI, and required SSA to tighten adjudications.¹² In

some ways these changes codified or extended earlier administrative changes aimed at slowing the growth of the programs. The amendments set the stage for substantial administrative tightening of the eligibility standards for claims filed in the next two years, as well as for aggressive efforts to remove persons who did not meet the tightened interpretation of the eligibility standards from the rolls through continuing disability reviews (CDRs). This was followed by widespread criticism of the loss of eligibility for many, particularly those with mental impairments who were disproportionately affected by the changes. This criticism eventually resulted in a moratorium on CDRs in 1984 and the 1984 amendments to the Act.

The 1984 amendments called for new mental impairment criteria that reduced the weight given to diagnostic or medical factors and put a greater weight on functional factors, such as the degree to which the applicant is limited with respect to activities of daily living, social relations, concentration, persistence and pace, and ability to function in work or work-like settings. In 1985, SSA published revised listings of mental impairments for adults in order to comply with the amendments.

The 1984 amendments also required that “source evidence”—evidence provided by an applicant’s own physician or other health care provider (e.g., psychologist)—be considered first, prior to the results of an SSA consultative examination. This had the effect of substantially increasing the weight given to source evidence. The amendments also required that due consideration be given to pain and other symptoms. Pain had previously been an important factor in many decisions, but concerns raised by litigation, advocates, and even SSA led Congress to codify and reaffirm SSA’s existing policy. Litigation over specific guidelines for the consideration of pain continued after 1984. SSA has now promulgated detailed regulations spelling out how symptoms are to be evaluated. The new regulations also have special significance for mental illnesses because consideration of mental symptoms, such as anxiety and depression, is important in many cases.

Another change required by the 1984 amendments is often mentioned along with changes in the treatment of source evidence and pain and other symptoms: a change in the treatment of multiple nonsevere impairments. Prior to the amendments, applicants were automatically denied awards in the initial determination if all impairments were

judged to be nonsevere, even if there were several; unlike in cases of impairments that are severe, but do not meet or exceed the listings, assessments of the effects of multiple “not severe” impairments were not individualized. The change in the law stopped these automatic denials. A final change brought about by the 1984 amendments was the establishment of a medical improvement standard. Benefits could no longer be terminated without substantial evidence of medical improvement in the beneficiary’s condition.

The legislative and administrative changes that surrounded the 1984 amendments were in part instigated by, and accompanied by, court decisions that required SSA to be less restrictive in making eligibility determinations. In *Mental Health Association of Minnesota v. Schweiker*, a 1982 class action suit on behalf of persons with severe mental illness in SSA’s Chicago region whose benefits had been denied or terminated because of alleged administrative changes in the evaluation of mental impairments, the plaintiffs charged that the Chicago region DDS offices were not applying the decision-making process called for in the regulations. Claimants with mental impairments who did not meet the listings were presumed to be able to engage in unskilled work. The judge ruled in favor of the plaintiffs, declaring SSA’s policy to be “arbitrary, capricious, irrational, and an abuse of discretion” (National Academy of Social Insurance 1994). A similar suit was brought by the City of New York against SSA in 1983, ending in a decision favoring the plaintiff and declaring that such a policy was illegal.

The Effects of the Supply Changes

The 15.4 percent decline in total initial determinations that occurred from 1980 to 1982 is usually attributed to the supply tightening that occurred during this period. That is, potential applicants were discouraged from applying by reductions in benefits and the tightening of eligibility. The 10.7 percent increase in initial determinations from 1984 to 1986 is attributed to the changes surrounding the 1984 amendments, while the 4.9 percent decline in initial determinations from 1987 to 1989 is attributed to the ending of their initial impact; i.e., the “pool” of potential applicants who were affected by the changes was presumably depleted.

The initial determination simulations provide strong evidence that the effects of the supply changes on application growth during this

period were even greater than the large swings in initial determination growth indicate because the state-level factors in our models had large, countervailing effects on initial determination growth (Exhibit 2.7). In particular, if it were not for the short recession of 1980 and the more substantial recession of 1981–1982, the swings in initial determination growth would have been even larger. The simulations imply that total initial determinations would have dropped by 28.8 percent from 1980 to 1982, instead of the actual 15.4 percent drop, if the unemployment rate and other explanatory variables in the model had remained at their 1980 values. Analogously, the increase in initial determinations from 1984 to 1986 would have been 16.8 percent instead of 10.7 percent. Further, the 4.9 percent decline from 1987 to 1989 that is usually attributed to the ending of the initial impact of the changes surrounding the 1984 amendments is entirely explained by the recovery from the recession; had there been no recovery, the model predicts that initial determinations would have grown by 0.1 percent.

While the initial determination simulations show that the effects of this period’s supply changes on initial determinations were much greater than previously thought, the initial allowance rate simulations show that the impacts of the supply changes on allowances, given applications, were not as large as swings in the actual allowance rate suggest. The simulations show that changes in other variables during this period, especially the unemployment rate, contributed to the decline in allowance rates from 1980 to 1982 and also contributed to their growth from 1984 to 1986. For instance, the DI-only simulations imply that the initial allowance rate would have fallen by 2.3 percentage points from 1980 to 1982 had the state-level explanatory variables remained constant over this period, rather than by the actual decline of 3.7 percentage points; the same rate would have increased by 1.5 percentage points from 1984 to 1986 instead of by the actual increase of 4.1 percentage points. Very similar results were found for the other program categories.

To summarize, the findings from our analysis of this period indicate that the impacts of historical supply changes on initial determination and allowance growth were even greater than previously thought. Further, the “indirect” effects of the supply changes on initial allowances (i.e., through effects on the number of initial determinations) are much more important relative to “direct” effects (i.e., through effects on the

share of initial determinations that result in initial allowances) than the actual initial determination and allowance rate series suggest.

Analysis of Supply Changes, 1989–93

Description of the Changes

Several additional policy changes in the DI and SSI programs occurred during the 1989–1993 period that may have affected the supply of disability benefits. As discussed previously, the 1984 amendments required that source evidence be considered first in the disability determination process. In 1991, further regulations regarding source evidence were adopted as a result of court challenges to SSA's treatment of source evidence. These regulations stipulated that deference must be given to source evidence because of the value of long-standing relationships between the patient and the health professional, and more weight must be given to source evidence the longer the relationship between the health professional and patient, or if the professional is a specialist in the relevant area. Further, if the source evidence is not accepted, the examiner must explain why.

In 1989 SSA initiated a congressionally mandated SSI outreach program. Since 1989, more intensive efforts at outreach have been pursued at the local, regional, state, and national levels. More than twenty-five cooperative agreements have been awarded for SSI outreach demonstration projects, some of which target persons with mental illness and homeless persons (Committee on Ways and Means 1994).

Another supply change during the 1989 to 1993 period is the marked decrease in the frequency of CDRs. Agency downsizing during the 1980s combined with the increased claims workload in the early 1990s resulted in a reduced allocation of resources to conduct CDRs. The proportion of DI beneficiaries leaving the rolls because of medical recovery dropped to an all time low of less than 0.5 percent in 1993.

There were very significant SSI supply shifts for children during this period, related to the 1990 Supreme Court decision in the case of *Sullivan v. Zebley* and the adoption of new mental disorder listings for children in 1991. Even though these supply changes pertain to child applications only, it has been suggested that the large impact of the decision on DDS and SSA determinations for children spilled over to decisions about adults. Because the most significant impacts of these

changes were on allowances to children with mental disorders, it would not be surprising if spillover effects for adult applications were primarily in the mental disorder category.

Finally, changes in the adjudicative climate during the 1989 to 1993 period likely contributed to application and award growth. "Adjudicative climate" refers to the attitudes of state and federal government adjudicators. The outcome in a marginal case may hinge on the attitude of a state disability determination service adjudicator or an administrative law judge toward the applicant, which may in turn be influenced by recent legislation, political and economic conditions, efforts by advocacy groups, an SSA commissioner's views, SSA's budgetary outlook, court decisions, and changes in SSA regulations and policies. Some have also argued that adjudicators faced with heavy workloads during times of rapid application growth are likely to give questionably eligible applicants the benefit of the doubt rather spend additional time seeking additional evidence.

While changes in the adjudicative climate cannot be measured directly, there is agreement among those familiar with the determination process that they do occur and play a substantial role. Many experts we interviewed believed that there was a significant shift in the adjudicative climate in favor of making awards during the 1989 to 1993 period (see Lewin-VHI 1995a).

In addition to changes that occurred after 1989, the many changes that were implemented prior to 1989 may have had a residual impact on growth. As noted in the discussion of the initial determination simulations for 1980–1989, the decline in initial determinations from 1987 to 1989 may have been due to the economic recovery rather than the end of the impact of changes surrounding the 1984 amendments. The changes created a group of "newly eligibles" who would not have previously satisfied the disability criteria, including some who had lost benefits in the preceding years. Many newly eligible individuals probably applied for benefits right away, but many others may not have applied for benefits because they were either employed, received income from some other source, or were not aware of their eligibility. Toward the end of the decade, and continuing into the next decade, the reasons why some newly eligibles did not apply earlier began to erode: the economy deteriorated; many state and local income support programs were cut; outreach efforts by SSA, state and local governments,

and private organizations disseminated information about the new rules to potentially eligible persons; and state and local governments, advocates, and lawyers learned how to identify potentially eligible individuals and help them obtain a favorable decision.

Effects of the Supply Changes

Evidence from Initial Determination and Allowance Simulations. The simulations of initial determinations for the period from 1989 to 1993 show that much of the growth in initial determinations over this period is accounted for by unemployment and other state-level explanatory variables in the econometric model, but that much remains unaccounted for. For SSI-only, a large share of the unaccounted for growth is clearly due to *Zebley* and the change in the mental impairment listings for children. Even for DI, however, the growth not accounted for by the models is large. From 1989 to 1993 DI initial determinations increased by 21.6 percent, an increase that is 15.7 percentage points greater than predicted by the econometric models.

The growth in DI initial determinations not accounted for by the models' explanatory variables represents an implicit upper bound on the effects of supply changes on initial determinations. As discussed above, we think that growth not accounted for is partly due to impacts of some other factors (the growth in the share of women who are disability-insured, the business cycle, and state and local shifting efforts especially) that are not fully captured in our models. Hence, the unaccounted for growth in initial determinations may substantially overstate the impact of supply changes. Nonetheless, it is likely that state-level factors cannot account for all of the residual growth.

The initial allowance rate simulations for 1989–1993 provide stronger indirect evidence on the importance of supply changes. The simulations for DI show that the simulated series increased at a rate only somewhat lower than the increase in the actual series in 1989 and 1990, but from 1990 to 1992 the two series moved in opposite directions—the actual rate for DI increased by 5.4 percentage points, while the simulated rate decreased by 0.9 percentage points. It seems likely that better measures of state-level factors in the model would increase, rather than reduce, the divergence in the actual and simulated series because, in general, we have found that such factors have a proportionately smaller impact on allowances than on initial determinations.

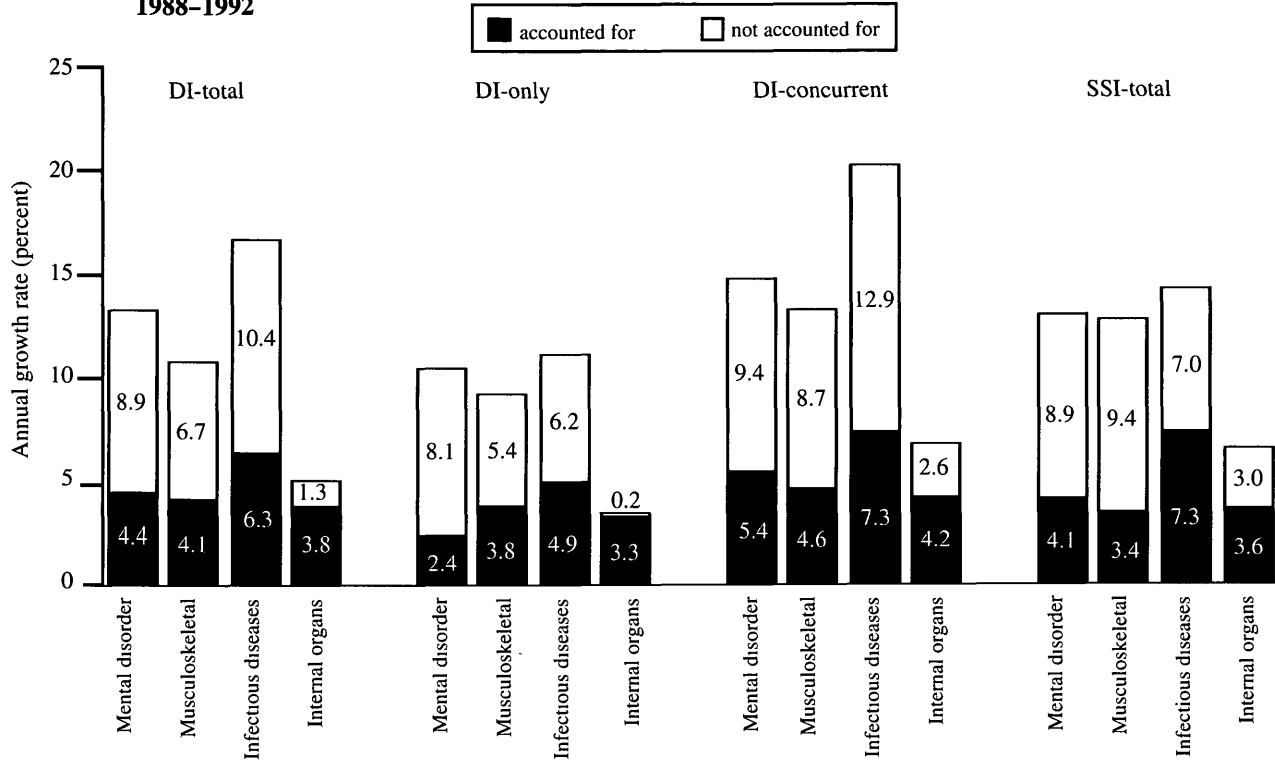
Hence, it is very difficult to explain these divergent paths by factors other than supply factors.

The initial allowance rate for DI fell by 5 percentage points from 1992 to 1993, while the simulated rate fell by only 1 percentage point. While it could be that the simulated series understates the negative impact of the recession on the allowance rate, we would also expect to find a decline in allowance rates after the initial impact of an expansion in supply is realized—just as observed in 1986–1987 following the initial impact of expansions surrounding the 1984 amendments. It is also possible that some administrative tightening occurred in 1993 in response to concerns over rapid program growth, but we are aware of no explicit effort of this sort.

Evidence from Application and Award Simulations. The application and award simulations for 1988–1992 provide some additional indirect evidence on supply changes during this period. The analysis of applications, for instance, accounts for more than three quarters of DI-only male application growth between 1988 to 1992, leaving only limited room for the net effect of either supply factors or other omitted factors on this group.¹³ The models did less well in accounting for SSI application growth, female application growth, growth in applications from those under age 50, and growth in applications in the mental and musculoskeletal disorder categories.

The fact that almost all of the application growth in the internal organs category is accounted for by factors in the model (Exhibit 2.8), while the other diagnostic groups show substantial unaccounted for growth, is consistent with the hypothesis that regulatory changes such as increasing the weight given to pain and other symptoms, increasing reliance on source evidence, and broadening the standards for those with mental impairments resulted in substantial application growth during this period. One important caution in interpreting the analysis of growth not accounted for by impairment is that relatively rapid application growth in some categories may simply reflect switching of impairment classifications toward categories in which it has become easier to obtain an award rather than applications that would not have been filed in the absence of supply changes. Thus, for instance, exceptionally high unaccounted-for growth in the mental disorder category

Exhibit 2.8 Annual Application Growth Rate Accounted for and Not Accounted for by Program and Impairment, 1988–1992



SOURCE: Lewin-VHI actuarial and regression analyses using the SSA's DRF. All data are for adults age 18–64.

may significantly overstate the effects of supply expansions on total applications.

As mentioned previously, state and local efforts to shift the burden of welfare spending onto the federal government are a significant source of the exceptionally high growth in the mental impairment category, and we suspect that a significant share of the category growth that is not accounted for by other variables is also due to these efforts. The effects of state and local efforts on application and award growth are, to some degree, inextricable from the effects of supply changes, however. As mentioned previously, many we have talked to argue that successful state and local shifting efforts were in part made possible by eligibility changes for mental impairments.

The econometric models also account for much less award growth than application growth. In fact, although final allowance rates increased over the 1988–1992 period, the models predict that they should have declined, just as with our findings for initial allowance rates. As in the analysis of initial allowance rates, it is difficult to conceive of an explanation other than a supply expansion for the growth in the final allowance rate. The econometric analysis shows that the effects on awards of most of the factors analyzed were proportionately no larger than their effects on applications, with some (especially the unemployment rate) being proportionately smaller. AIDS/HIV may be an exception, but this would only apply to the infectious disease category.

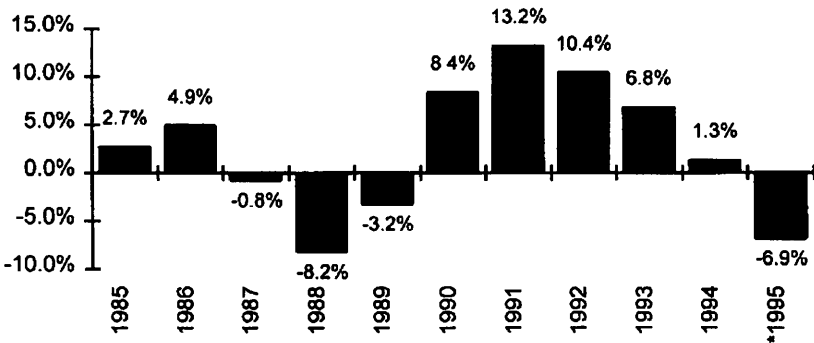
CONCLUSION

A 1992 report from the Department of Health and Human Services, known as the *709 Report*, found that the causes of DI program growth are many and complex.¹⁴ The evidence we have examined confirms this conclusion, but also points to three major causes of the acceleration of application and award growth that began in 1989: the recession of 1990–1991; new and intensified efforts by states and localities to shift the burden of welfare spending onto the federal government; and expansion in the “supply” of benefits. The relative importance of each factor varies by program and is different for applications and awards.

The recession is apparently more important for DI than SSI, while shifting efforts and supply factors are more important for SSI than DI, and supply factors are substantially more important for awards than for applications. A fourth factor that clearly contributed to the acceleration of growth, but to a lesser degree, is the AIDS/HIV epidemic.

The findings imply that the steady economic growth experienced by the economy since 1992 is very good news for policymakers worried about rapid program growth, especially for DI. This is confirmed by the most recent data available on DI application growth (Exhibit 2.9): after the growth rate reached a peak of 13.2 percent in 1991, it dropped to 1.3 percent in 1994 and was a negative 6.9 percent through the first seven months of 1995. These rates compare to expected growth of 2.1 percent based on changes in the size and age/gender composition of the disability insured population alone. We would not be surprised if the rate of growth continued to fall because application rates are still well above their 1988 level. The bad news is that DI caseloads will continue to grow in coming years because many of the large number of persons awarded benefits during the recent period are expected to remain on the roles for years to come (see Rupp and Scott, Chapter 4).

Exhibit 2.9 Annual Growth Rate of DI Applications, 1985–1994



SOURCE. SSA Office of Disability and Lewin-VHI calculations.

*The growth rate for 1995 is based on applications in the first seven months of 1995, compared to the same seven months of 1994.

The findings add to mounting evidence that economic incentives play a critical role in determining whether individuals with disabilities participate in the labor force or seek, and perhaps obtain, disability benefits. For many people with disabilities, it is not simply a matter of whether they can or cannot work because of their disabilities; rather it is a matter of whether the rewards to working are sufficient to make work more attractive than leaving the labor force and applying for disability benefits. While it must be recognized that this statement is not true for a large number of individuals with disabilities who have virtually no employment prospects even in a strong economy, the estimated magnitude of the impact of recessions on DI applications indicates that the statement is true for a large number.

Notes

1. The findings summarized here are compiled from three project reports: Lewin-VHI (1995a, 1995b, and 1995c).
2. See Rupp and Stapleton (1995) and Lewin-VHI (1995a) for discussion of earlier years.
3. The SSI-only category in the national data excludes SSI applications from individuals who were eligible for social security benefits in any category, including those eligible as DI workers.
4. There are advantages and disadvantages to analyzing awards by “application cohort.” The primary advantage is that it allows us to examine the allowance rate (awards per application filed) for each application cohort within age/gender/program groups. Aggregate statistics typically compare applications filed in each year with awards made in that year. The lag between the filing of an application and a final decision may span one or more years. During periods of rapid application growth, allowance rates calculated from aggregate data may be greatly distorted. The primary disadvantage of using awards data for application cohorts is that events that occur between the time an application is filed and the time of the final decision cannot be modeled with aggregate data because the length of this period varies greatly across individuals in each application cohort.
5. For initial determinations, the definition of concurrent is based on the status of claims at the time the determination is made.
6. This variable is not included in the initial determination regressions reported in the appendix to this chapter because we did not have data for the full 1980–1993 period. It was, however, included in models estimated using the subperiod for which it is available. See Lewin-VHI (1995c).
7. We are grateful to Charles Scott of the Office of Supplemental Security Income for providing this information.

8. See U.S. General Accounting Office (1995). A total of 6,500 cases have been identified in the states of California and Washington, combined.
9. The decline in initial determinations may have, in part, been a result of improvements in SSA's administrative computer system which were implemented in 1981. As a result of these improvements, it was frequently unnecessary to process a formal application in cases where a person was found to lack insured status. While this certainly had a large impact on the formal applications filed, it is unclear as to its impact on initial determinations.
10. The *t*-statistic for the estimate is 7.7. The estimate using the 1980–1987 subperiod is 0.73, and the estimate using the 1988–1993 subperiod is 0.84.
11. The *t*-statistic is 4.3 using the full period. The estimate using the 1980–1987 subperiod is 0.8, while that using the 1988–1993 subperiod is 0.3.
12. See the National Academy of Social Insurance (1994) for a detailed description.
13. Note that this upper bound refers to *net* effects of unmeasured factors. It is entirely conceivable that even if the net residual is small, there is room for potentially larger effects that work in opposite directions.
14. The report was mandated by Congress under Section 709 of the Social Security Act. Its full title is *The Social Security Disability Insurance Program: An Analysis*.

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Appendix to Chapter 2

As discussed in the text, we estimated a series of pooled cross-section time-series models of applications and awards for the 1988–1992 period and of initial determinations and initial allowance rates for the 1980–1993 period, using annual data for states. In the first section of this appendix we provide a technical description of the methodology. Selected regression results appear in the next section, followed by results of simulations using the 1988–1992 estimates.

SPECIFICATION OF POOLED CROSS-SECTION TIME-SERIES MODELS

For the 1988–1992 analysis, state application data were disaggregated and analyzed by program, sex, age, and impairment: three program groups (DI-only, DI-concurrent, and total SSI), the usual two sex categories, five age groups (under 30; 30 to 39; 40 to 49; 50 to 59; and 60 to 64), and four impairment categories (mental illness and mental retardation; musculoskeletal; infectious diseases, including AIDS/HIV, and impairments not otherwise classified;¹ and internal organ disorders—including cardiovascular, neoplasms, and other internal disorders, as well as impairments caused by accidents. Thus, we estimated a total of 120 (3x2x5x4) application equations; each equation refers to applications in a specific program/sex/age/impairment group.

The 1988–1992 award analysis was performed at a higher level of aggregation—by program and sex only (six equations). While we initially obtained award data at the more disaggregated level, the 1992 award data were very incomplete because many decisions were still pending. We subsequently obtained updated data, but only at the higher level of aggregation.

The 1980–1993 initial determination and initial allowance rate analysis was performed at a still higher level of aggregation—by program only (DI-only, concurrent, and SSI-only).

The models used in all of the analysis have the same structure. In each case the dependent variable is the (natural) logarithm of one of the following: an application rate (applications per thousand population); an incidence rate (awards per thousand population); an initial determination rate (initial determinations per thousand population); or an initial allowance rate (initial allowances per initial determination). In the application analysis the population in the denominator is for the relevant age/sex group; in the award analysis it is for those age 18 to 64 of the relevant sex; and in the initial determination analysis it is for all those age 18 to 64.

The dependent variable in each application equation is the logarithm of an application rate. For the higher level of aggregation, the rate is male or female applications for the program per one thousand adult males or females, respectively. For the lower level of aggregation, it is an impairment-specific “application rate” for the age/gender group—the number of applications in the relevant program category per thousand persons from the age/gender group in one of the four impairment categories. The dependent variable in the corresponding award equation is the corresponding impairment-specific “incidence rate”—the number of awards in the impairment category per thousand persons in the age/gender group.

Each equation estimated had the following general form:

$$\ln(A_{st}) = \beta_s + \beta_1 X_{1st} + \beta_2 X_{2st} + \dots + \beta_k X_{kst} + \alpha_1 V1_t + \dots + \alpha_7 VT_t + E_{st}$$

where

A_{st} is an application, incidence, initial determination, or initial allowance rate, as specified above, in state s and year t .

β_s is the intercept for state s (i.e., the equation intercept varies across states). The intercepts are sometimes referred to as fixed “state effects” because they capture the effects of all factors that vary across states but not over time.

$X_{1st}, X_{2st}, \dots, X_{kst}$ are the explanatory variables. For the 1980–1993 analysis these include both current and prior year values of selected variables.

$\beta_1 \dots \beta_k$ are the coefficients of the X variables, to be estimated.

$V1_t \dots VT_t$ are dummy variables for each year of data except the first (base) year. $V1$ equals 0 for the first year and 1 for all subsequent years, $V2$ equals 0 for the first and second year and 1 for all subsequent years, etc. VT equals 1 in the last year (T) only.

$\alpha_{89} \dots \alpha_{92}$ are the coefficients of the year dummies. These are sometimes called “year” or “time” effects because each coefficient captures the effects of changes in all national factors in the corresponding year that have the same impact on the dependent variable in all states.

E_{st} is the error term for state s and year t

As described in the text, the analysis relates within-state *changes* in the dependent variable to *changes* in the explanatory variables. This is not immediately evident in the above specification, but is in fact correct because of the

presence of a different intercept for each state. Since these control for all cross-state differences that are fixed over time, they in effect control for all of the base-year values of the explanatory variables as well as the base-year value of the dependent variable. Hence, the coefficients of the explanatory variables are determined by how the dependent variables change over time in relationship to how the explanatory variables change over time.

The models were estimated by weighted least squares, with weights equal to the size of the state's population in the relevant age/gender category. This method yields efficient estimates if the variances of the regression disturbances are inversely proportional to the size of the group population in the state and the disturbances are independent across states and over time. Weighted estimates also provide better predictions of the national level of applications and awards relative to unweighted estimates. The reason for this is that they improve the fit for large states relative to small states, and growth in large states determines a large share of national growth.²

We also looked for evidence of serial correlation in the disturbances. In the 1988–92 analysis we assessed the importance of serial and correlation and other dynamic specification issues by comparing the results obtained from weighted least squares using the full five years of data to results obtained using just the first (1988) and last (1992) year of data alone. The main findings were very robust in this comparison. The individual state intercepts wash out any autocorrelation in the “two-year” estimates, which are the basis of the findings reported here. In the 1980–93 analysis it was essential to use all years' observations in order to examine dynamic aspects of initial determinations and allowance rates. Hence, we specified a first-order autoregressive model for each state's weighted disturbance, with a common autocorrelation coefficient for all states. The estimated coefficient was always between zero and one and usually was significant. We also found some evidence of spatial correlation in pairs of adjacent states, but the evidence was erratic and did not warrant the substantial effort required to correct for it. Ignoring spatial correlation does not bias parameter estimates but can result in estimated standard errors that are biased toward zero. The models were estimated using the Statistical Analysis System (SAS); the REG procedure was used for the 1988–92 analysis and the MODEL procedure was used for the 1980–93 analysis. Standard errors for the 1980–93 models were corrected for any cross-state heteroskedasticity in the weighted disturbances, but this was not done for the 1988–92 analysis.

REGRESSION RESULTS

Selected application and award regression results for the 1988–1992 period are reported in Exhibit 2A.1. These results were estimated using application

and award data disaggregated by program and sex only; the voluminous application results by program, sex, age, and impairment are reported in the appendix to Lewin-VHI (1995b). Selected results from the 1980–1993 analysis of initial determinations and allowance rates appear in Exhibits 2A.2 and 2A.3.

SIMULATION RESULTS FOR 1988–1992

We report simulation results based on the 1988–1992 application and award models in Exhibit 2A.4. These show the percentage points of average annual growth in applications or awards during the period that are accounted for by each variable included in the final regression models, by program and sex. The application results were obtained by aggregating results simulated by program, sex, age, and impairment to the level of program and sex. Note that they do not correspond to the aggregate regression results reported in Exhibit 2A.1, but those regressions yield results that are very similar. Application simulations by age and by impairment are reported in the appendix to Lewin-VHI (1995b). The award simulations are based on the award regressions reported in Exhibit 2A.1.

Appendix Notes

1. AIDS/HIV cases first were included in the “other” impairment category before being recategorized in the infectious disease category.
2. To test for heteroscedasticity, we estimated White standard errors and found that they were not significantly different from the standard errors estimated by weighted least squares.

Exhibit 2A.1 Selected Regression Estimates for Application and Award Regressions, 1988–1992

Dependent variable: logarithm of per capita application or incidence ratio in gender/program category

Variable	Applications						Awards					
	DI-only		DI-concurrent		SSI-total		DI-only		DI-concurrent		SSI-total	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Unemployment rate ¹	0.266 (7.3)	0.128 (4.1)	0.323 (7.7)	0.074 (1.6)	0.209 (5.9)	0.050 (1.3)	0.181 (4.6)	0.056 (1.4)	0.189 (3.9)	0.015 (0.3)	0.113 (2.7)	0.065 (1.3)
GA program cuts ²			0.073 (3.4)		0.122 (6.7)	0.086 (4.4)			0.082 (3.3)		0.099 (4.7)	0.085 (3.3)
AIDS/HIV incidence ³	0.037 (1.0)		0.107 (2.5)		0.078 (2.2)		-0.006 (-0.2)		0.029 (0.6)		-0.091 (-2.2)	
IRCA legalizations ⁴					0.016 (1.3)	0.003 (0.2)					-0.068 (-4.7)	-0.076 (-4.3)
% of children in single parent families ⁵	-0.010 (-0.1)	0.087 (0.8)	0.285 (1.9)	0.408 (2.4)	0.280 (2.2)	0.418 (3.1)	-0.142 (-1.0)	-0.084 (-0.6)	0.086 (0.5)	0.144 (0.7)	0.129 (0.9)	0.063 (0.4)
Time effect for 1992 vs. 1988 ⁶	0.056 (2.2)	0.235 (14.8)	0.190 (6.4)	0.388 (16.7)	0.207 (8.0)	0.287 (14.8)	0.165 (6.1)	0.346 (16.6)	0.311 (9.0)	0.474 (16.0)	0.426 (14.1)	0.403 (15.6)

NOTE: Coefficients of variables specified in logarithms are elasticities by definition. Except for the time effect, all other coefficients have been converted to elasticities "at the mean" by multiplying the coefficient itself by the mean of the variable. Elasticities in bold type have the expected sign and an absolute *t*-statistic of at least 2.0. Elasticities in normal type have absolute *t*-statistics of less than 2.0. Italicized elasticities have the sign opposite that expected and absolute *t*-statistics of at least 2.0. A separate intercept for each state was also included in each model (not reported)

¹The variable used is the log of the state's unemployment rate.

²The GA variable is zero for every state in 1988; in 1992 it is the number of cuts in GA beneficiaries per capita between 1991 and 1992 in seven states and the District of Columbia and zero in all other states.

³The AIDS/HIV variable is the logarithm of the incidence rate

⁴The IRCA legalizations variable is zero in 1988 and is the number of legalizations per capita in 1992.

⁵The percentage of children in single parent families is in logarithms.

⁶This coefficient is an estimate of the percentage increase in the dependent variable from 1988 to 1992 that is not accounted for by the explanatory variables.

Exhibit 2A.2 Regression Estimates for Initial Determination Models, 1980–1993

Dependent variable: the log of initial determinations per capita

Explanatory variables	DI-only			Concurrent			SSI-only		
	1980–1993	1980–1987	1988–1993	1980–1993	1980–1987	1988–1993	1980–1993	1980–1987	1988–1993
Expected application rate ^{a,b}	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Unemployment rate ^{b,c}									
Current	0.086* (4.06)	0.056* (1.97)	0.099* (4.05)	0.088* (2.91)	0.083 (1.90)	0.085* (2.90)	-0.022 (-0.72)	0.045 (1.04)	-0.060 (-1.74)
-1	0.099* (4.57)	0.066* (2.36)	0.125* (4.23)	0.123* (3.88)	0.078 (1.72)	0.132* (4.20)	0.091* (2.97)	0.124* (2.99)	0.001 (0.04)
-2	0.097* (4.83)	0.117* (4.40)	0.027 (1.06)	0.050 (1.63)	-0.062 (-1.41)	0.042 (1.36)	0.073* (2.42)	0.085* (1.99)	-0.006 (-0.16)
Sum	0.282* (10.5)	0.239* (7.6)	0.251* (6.9)	0.261* (6.6)	0.099 (1.7)	0.259* (6.9)	0.142* (3.0)	0.254* (4.0)	-0.065 (-1.5)
Labor force participation ^{a,b}									
Current	-0.634* (-3.34)	-0.608* (-2.60)	-0.616* (-2.57)	0.065 (0.25)	-0.147 (-0.42)	-0.015 (-0.06)	0.201 (0.77)	-0.427 (-1.21)	0.032 (0.11)
-1	-0.046 (-0.27)	0.414* (1.97)	-0.465* (-2.12)	-0.479* (-2.03)	-0.773* (-2.50)	-0.602* (-2.48)	-0.427 (-1.78)	0.052 (0.17)	-1.196* (-3.87)
-2	-0.181 (-1.14)	-0.149 (-0.74)	0.061 (0.28)	-0.256 (-1.14)	-0.621* (-2.10)	-0.371 (-1.53)	-0.820* (-3.56)	-0.628* (-2.11)	-1.153* (-3.82)
-3	-0.040 (-0.25)	0.007 (0.03)	-0.378 (-1.70)	0.118 (0.52)	-0.055 (-0.18)	-0.362 (-1.45)	-0.223 (-0.97)	-0.117 (-0.39)	-0.632* (-1.99)

Sum		-0.901* (-2.8)	-0.336 (-0.8)	-1.398* (-3.5)	-0.552 (-1.2)	-1.596* (-2.8)	-1.350* (-2.8)	-1.269* (-2.3)	-1.120 (-1.7)	-2.949* (-4.9)
Manufacturing employment ^{a,b}		-0.072 (-1.45)	-0.180* (-2.46)	-0.072 (-0.66)						
AIDS/HIV ^b		-0.008 (-1.18)	-0.011 (-0.43)	0.004 (0.58)	-0.018 (-1.79)	-0.003 (-0.10)	-0.019* (-1.98)	-0.032* (-3.04)	-0.022 (-0.64)	0.018 (1.57)
Poverty ^{a,b}				0.037 (1.34)	0.091* (2.37)	0.007 (0.26)	0.045 (1.79)	0.065 (1.76)	0.018 (0.56)	
GA changes				0.002 (0.60)	-0.003 (-0.87)	0.004* (2.13)	0.005 (1.79)	0.009* (2.20)	0.005* (2.18)	
AFDC ^a				-0.010 (-0.20)	-0.003 (-0.05)	-0.008 (-0.09)	-0.226* (-3.84)	-0.303* (-4.90)	0.091 (0.90)	
SSI supplements ^a				0.382* (4.34)	0.758* (6.11)	0.284 (1.90)	0.801* (7.67)	0.734* (5.82)	0.840* (4.39)	
Autoregressive parameter		0.534* (14.34)	0.344* (5.81)	0.172* (2.26)	0.515* (14.99)	0.278* (4.64)	0.368* (4.92)	0.727* (22.95)	0.503* (9.14)	0.338* (4.46)
Weighted state intercept		-6.469	-6.454	-6.746	-2.494	2.180	-3.681	0.147	-1.636	4.709
Time effects	1981	-0.083* (-7.01)	-0.071* (-5.60)		-0.117* (-6.40)	-0.119* (-5.49)		-0.120* (-6.75)	-0.140* (-6.87)	
	1982	-0.187* (-15.25)	-0.187* (-14.26)		-0.160* (-9.04)	-0.158* (-7.67)		-0.169* (-9.49)	-0.190* (-9.74)	
	1983	-0.095* (-8.75)	-0.091* (-8.14)		0.044* (2.81)	0.063* (3.36)		0.030 (1.91)	0.016 (0.89)	
	1984	-0.001 (-0.05)	-0.011 (-0.82)		0.080* (4.76)	0.115* (5.45)		0.051* (3.02)	0.064* (3.19)	

(continued)

Exhibit 2A.2 (continued)

Explanatory variables	DI-only			Concurrent			SSI-only		
	1980-1993	1980-1987	1988-1993	1980-1993	1980-1987	1988-1993	1980-1993	1980-1987	1988-1993
1985	-0.015 (-1.40)	-0.028* (-2.45)		0.032* (2.12)	0.035* (1.99)		0.055* (3.73)	0.062* (3.78)	
1986	0.070* (6.73)	0.067* (6.16)		0.219* (15.20)	0.204* (12.53)		0.157* (10.92)	0.160* (9.95)	
1987	0.028* (2.94)	0.019 (1.84)		0.016 (1.15)	0.036* (2.23)		0.057* (4.15)	0.057* (3.58)	
1988	0.011 (1.17)			-0.082* (-6.05)			0.052* (3.81)		
1989	-0.005 (-0.49)		-0.008 (-0.89)	-0.035* (-2.60)		-0.032* (-2.93)	0.032* (2.42)		0.035* (2.81)
1990	0.032* (3.40)		0.026* (3.06)	0.091* (6.80)		0.096* (9.22)	0.093* (7.10)		0.102* (8.58)
1991	0.014 (1.42)		0.009 (0.98)	0.091* (6.74)		0.098* (9.17)	0.161* (12.14)		0.187* (14.94)
1992	0.038* (4.10)		0.035* (4.24)	0.175* (12.13)		0.171* (13.69)	0.281* (19.38)		0.328* (21.72)
1993	0.003 (0.26)		0.004 (0.38)	0.106* (6.27)		0.107* (7.87)	0.169* (10.00)		0.146* (9.01)

SOURCE Lewin-VHI analysis of SSA data on initial disability determinations, using data for all 50 states and the District of Columbia. SSI-only estimates include children.

^aVariable is in logarithms

^bVariable is age-adjusted.

*Significant at the 0.05 level.

Exhibit 2A.3 Regression Estimates for Allowance Rate Models, 1980–1993

Dependent variable: the log of initial allowance rates

Explanatory variables	DI-only			Concurrent			SSI-only		
	1980–1993	1980–1987	1988–1993	1980–1993	1980–1987	1988–1993	1980–1993	1980–1987	1988–1993
Unemployment rate ^{a,b}									
Current	0.032 (1.42)	-0.002 (-0.07)	0.003 (0.13)	-0.027 (-0.77)	-0.209* (-3.74)	-0.051 (-1.34)	0.000 (0.00)	-0.105* (-2.39)	-0.037 (-1.27)
-1	-0.104* (-4.54)	-0.058 (-1.63)	-0.099* (-3.53)	-0.188* (-5.28)	-0.130* (-2.40)	-0.208* (-4.94)	-0.158* (-5.66)	-0.130* (-2.89)	-0.148* (-4.77)
-2	-0.115* (-5.41)	-0.102* (-3.25)	-0.058* (-2.29)	-0.113* (-3.23)	-0.132* (-2.54)	-0.045 (-1.15)	-0.136* (-4.83)	-0.132* (-3.07)	-0.097* (-3.16)
Sum	-0.187* (-6.5)	-0.162* (-4.4)	-0.154* (-4.2)	-0.328* (-6.5)	-0.471* (-6.1)	-0.304* (-6.1)	-0.294* (-6.9)	-0.367* (-6.2)	-0.282* (-6.9)
Labor force participation ^{a,b}									
Current	0.383* (1.96)	0.726* (2.52)	0.863* (3.44)	-0.358 (-1.13)	-0.335 (-0.75)	0.477 (1.33)	-0.238 (-0.94)	0.071 (0.21)	-0.112 (-0.42)
-1	0.047 (0.27)	-0.034 (-0.13)	0.783* (3.45)	-0.040 (-0.14)	-0.381 (-1.04)	1.066* (2.94)	-0.131 (-0.58)	-0.143 (-0.51)	0.485 (1.74)
-2	-0.404* (-2.40)	0.308 (1.33)	-0.844* (-3.72)	-0.498 (-1.82)	0.175 (0.49)	-1.114* (-3.11)	-0.034 (-0.16)	0.605* (2.22)	-0.345 (-1.25)
-3	0.116 (0.68)	0.620* (2.69)	-0.104 (-0.44)	0.220 (0.80)	0.780* (2.25)	0.254 (0.69)	0.584* (2.71)	0.772* (2.91)	1.128* (3.77)

(continued)

Exhibit 2A.3 (continued)

Explanatory variables	DI-only			Concurrent			SSI-only		
	1980-1993	1980-1987	1988-1993	1980-1998	1980-1987	1988-1993	1980-1993	1980-1987	1988-1993
Sum	0.142 (0.4)	1.620* (3.6)	0.698 (1.4)	-0.676 (-1.2)	0.239 (0.3)	0.683 (0.8)	0.181 (0.4)	1.305* (2.4)	1.156* (2.1)
Manufacturing employment ^{a,b}	-0.074 (-1.47)	0.036 (0.54)	0.152 (1.32)						
AIDS/HIV ^a	0.011 (1.56)	0.001 (0.04)	-0.010 (-1.46)	0.051* (3.98)	0.124* (2.76)	-0.006 (-0.56)	0.042* (3.82)	0.064* (2.02)	-0.008 (-0.90)
Poverty ^{a,b}				0.018 (0.57)	0.065 (1.47)	-0.005 (-0.13)	-0.014 (-0.57)	0.051 (1.37)	-0.017 (-0.64)
GA changes				0.001 (0.22)	-0.012 (-1.85)	0.004* (2.08)	0.002 (0.77)	-0.010* (-2.13)	0.006* (2.83)
AFDC ^a				0.052 (0.71)	0.053 (0.66)	-0.163 (-1.17)	0.166* (2.84)	0.121* (2.06)	0.028 (0.31)
SSI supplements ^b				-0.127 (-1.12)	0.187 (1.23)	0.280 (1.08)	-0.139 (-1.50)	0.022 (0.20)	0.411* (2.18)
Autoregressive parameter	0.547* (15.45)	0.283* (4.81)	0.461* (6.36)	0.620* (17.76)	0.455* (7.95)	0.563* (8.31)	0.685* (20.34)	0.293* (4.86)	0.529* (7.73)
Weighted state intercept	-1.001	-0.924	-0.870	-2.406	1.554	0.140	-0.745	0.750	4.476
Time effects									
1981	-0.052* (-4.29)	-0.083* (-5.29)		-0.056* (-2.60)	-0.100* (-3.84)		-0.025 (-1.45)	-0.057* (-2.65)	
1982	-0.017 (-1.30)	-0.013 (-0.83)		-0.053* (-2.49)	-0.037 (-1.49)		-0.007 (-0.41)	0.004 (0.18)	

1983	0.120*	0.120*	0.218*	0.220*	0.168*	0.168*
	(10.62)	(8.82)	(11.64)	(9.83)	(11.35)	(9.25)
1984	0.110*	0.096*	0.193*	0.160*	0.136*	0.111*
	(8.96)	(6.25)	(9.59)	(6.40)	(8.62)	(5.51)
1985	0.007	0.020	0.011	0.017	-0.022	-0.018
	(0.67)	(1.45)	(0.62)	(0.85)	(-1.59)	(-1.03)
1986	0.021	0.025	0.098*	0.090*	0.064*	0.060*
	(1.92)	(1.93)	(5.70)	(4.69)	(4.66)	(3.67)
1987	-0.057*	-0.063*	-0.131*	-0.150*	-0.115*	-0.126*
	(-5.67)	(-5.30)	(-7.79)	(-7.86)	(-8.75)	(-8.34)
1988	-0.041*		-0.062*		-0.071*	
	(-4.06)		(-3.77)		(-5.48)	
1989	0.002	0.010	0.004	0.003	-0.009	-0.001
	(0.25)	(1.19)	(0.26)	(0.22)	(-0.68)	(-0.10)
1990	0.009	0.022*	0.037*	0.044*	0.077*	0.087*
	(0.87)	(2.61)	(2.31)	(3.34)	(6.15)	(8.05)
1991	0.079*	0.102*	0.061*	0.068*	0.093*	0.091*
	(7.79)	(11.04)	(3.78)	(4.97)	(7.38)	(8.60)
1992	0.059*	0.071*	0.088*	0.094*	0.064*	0.070*
	(5.93)	(9.02)	(5.00)	(5.24)	(4.65)	(5.11)
1993	-0.088*	-0.075*	-0.158*	-0.105*	-0.126*	-0.071*
	(-7.17)	(-6.95)	(-7.58)	(-5.85)	(-7.48)	(-5.03)

SOURCE Lewin-VHI analysis of SSA data on initial disability determinations, using data for all 50 states and the District of Columbia. SSI-only estimates include children

^aVariable is in logarithms.

^bVariable is age-adjusted

*Significant at the 0.05 level.

Exhibit 2A.4 Decomposition of the Growth in Applications and Awards, 1988–1992

	Level	Change in annual applications or awards, 1988–92	Predicted annual growth rate accounted for by								Share of growth accounted for (%)
		Average annual growth rate (%)	Predicted annual growth rate (%)	Population growth and aging (%)	Unemployment rate (%)	GA program cuts (%)	AIDS/HIV (%)	IRCA legalizations (%)	Children in single-parent families (%)	Interaction (%)	
Applications											
DI-total	329,369	8.9	4.1	1.3	1.7	0.1	0.5		0.3	0.2	46
Men	182,649	7.9	5.0	1.3	2.2	0.1	0.9		0.2	0.3	63
Women	146,720	10.5	2.6	1.3	0.9				0.4	0.1	25
SSI-total	434,274	10.5	4.3	1.2	1.1	0.6	0.4	0.2	0.6	0.2	41
Men	227,938	10.7	5.4	1.2	1.6	0.7	0.9	0.2	0.5	0.3	50
Women	206,336	10.3	3.0	1.1	0.6	0.4		0.2	0.6	0.1	30
Awards											
DI-total	197,569	10.0	2.3	1.0	1.0	0.1	0.1		0.0	0.1	23
Men	110,971	8.8	2.8	1.1	1.4	0.1	0.1		-0.1	0.1	31
Women	86,598	12.1	1.3	1.0	0.3				0.0	0.0	11
SSI-total	234,393	12.0	0.9	1.1	0.7	0.6	-0.5	-1.0	0.2	-0.1	7
Men	115,059	12.2	0.7	1.1	0.9	0.6	-1.0	-1.0	0.2	-0.1	6
Women	109,334	11.8	1.1	1.0	0.5	0.5		-1.0	0.1	-0.1	9

SOURCE Simulations based on regression analysis of state data for 1988 and 1992

Comments on Chapter 2

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The econometric findings reported by Stapleton et al. (Chapter 2) demonstrate a strong relationship between state unemployment rates and the growth in applications for Social Security Disability Insurance (DI) and Supplemental Security Income (SSI) programs. The analysis is more sophisticated than previous research demonstrating this relationship, principally because the researchers were able to incorporate effects due to changes in the demographic structure and in how national program rules were implemented in different states (Hambor 1975; Levitan and Taggart 1977; and Lando, Coate, and Kraus 1979).

Given the strength of these findings and the consistency of these results with those of other researchers, policymakers concerned with DI and SSI would do well to evaluate the forces in the economy that give rise to increases in applications during periods of economic uncertainty. In this commentary, I will outline some of the long-term trends that may account for the short-term problems in disability compensation programs. In suggesting a focus on long-term changes, my hypothesis is that persons with disabilities, like minorities and others facing difficulties in the labor market, have experienced a disproportionate amount of the shift in the kind and nature of employment. Cyclical downturns may exacerbate some of these changes, or they may legitimate applications for benefits that would not be approved during good times.

Table 1 lists a few of the changes in the labor market that have occurred during the last two decades or so. As men, especially older men, have exited the labor force, women have entered the labor force in record numbers, a trend especially pronounced among younger women. These changes are associated with the shift from a manufacturing to a service economy, with men disproportionately represented in the former and women in the latter (Yelin 1992). At the same time, the nature of work has changed. Smaller proportions of the labor force

Table 1 Long-Cycle Complements to Short-Cycle Phenomena

-
- Declining employment rates of men, especially older men
 - Rising employment rates of women, especially younger women
 - Declining employment in manufacturing
 - Rising employment in services
 - Increase in part-time employment
 - Increase in contingent employment, including self-employment temporary, leased, and contract workers
 - Declining percentage with employer-provided health insurance and pensions
-

are in full-time, full-year jobs. Greater proportions are self-employed. In addition, greater proportions are not actually hired by the firms for whom they do the work. Instead, they may work on a contract basis or may be employed by a temporary firm. Increasing numbers are employed permanently by a contractor who then “leases” the workers to the firm for whom the work is done (Osterman 1988). Finally, smaller proportions of the labor force report receiving health insurance or pension coverage from their employer (U.S. Bureau of the Census 1993; Yelin 1992).

Employment data do not cover all these phenomena, but the data that are available are consistent with the notion that persons with disabilities experience these trends disproportionately. Table 2 compares overall rates of labor force participation for 1970–1972 and 1990–1992. Among all men, labor force participation rates declined slightly, by 2.6 percent. Among all men age 55 to 64, labor force participation declined more steeply, by 16.0 percent overall. Among all men with disabilities, labor force participation rates declined by more than 15 percent, almost ten times the decline experienced by men without disabilities. Similarly, among men age 55 to 64 with disabilities, labor force participation rates declined by more than twice as much as among men these ages without disabilities. In contrast, among women, those with disabilities shared in the growth in employment among all women. Indeed, young women with disabilities experienced larger relative growth than those without disabilities.

Table 2 Change in Rate of Employment of Persons with and without Disabilities, 1970–1972 vs. 1990–1992

	With disabilities (%)	Without disabilities (%)	All (%)
All men	-15.3	-1.6	-2.6
Men, 55–64	-29.3	-13.7	-16.0
All women	41.5	40.8	39.8
Women, 18–44	49.6	45.5	44.8
All persons	1.1	11.1	13.7

SOURCE: Adapted from Yelin and Katz (1994, Table 1)

Aggregating across a small net decrease in labor force participation rates among all men and a large net increase among all women, overall labor force participation rates increased by 13.7 percent during the period covered. However, the net gain among persons with disabilities was small, while among those without disabilities, it was ten times as large.

Labor force trends among persons with disabilities would appear to be tied to the contraction of manufacturing and the expansion of services (Table 3). In 1970, persons with disabilities held 9 percent of manufacturing jobs. This proportion declined in the ensuing period, so that by 1987 their share of manufacturing jobs fell to 8.3 percent. Meanwhile, the share of jobs in services held by persons with disabilities increased, albeit not in a linear fashion, from 9.8 percent to 11.6 percent, almost 20 percent in relative terms.

The foregoing data are broadly consistent with the notion that persons with disabilities are prone to a last-hired, first-fired phenomenon, displaced in declining industries and at higher rates than men without disabilities, but hired in expanding ones and at similar rates to women without disabilities.

In addition, persons with disabilities would appear to experience short-term trends in employment disproportionately. Table 4 shows labor force participation rates for persons with and without disabilities for the period 1981–1983, a recession; 1983–1990, an expansionary era; and 1990–1992, the most recent recession. In the two recessions, persons with disabilities experienced much larger declines in employ-

Table 3 Share of Employment among Persons with Disabilities, by Sector and Year

	1970 (%)	1982 (%)	1987 (%)
Manufacturing	9.0	8.9	8.3
Services	9.8	9.1	11.6

SOURCE. Author's analysis of *National Health Interview Survey*.

Table 4 Cyclical Trends in Employment of Persons with and without Disabilities (%)

Years	With disabilities	Without disabilities
1981–83	–4.5	–1.0
1983–90	14.0	8.8
1990–92	–4.1	–0.8

SOURCE. Author's analysis of *Annual March Supplement to Current Population Survey*

ment than those without disabilities. In contrast, they experienced a larger relative increase in employment when overall employment rates were growing.

The long-term phenomenon of displacement of persons with disabilities—particularly men—from industries shedding workers and the short-term downturns combine to generate a large pool of applicants for disability compensation programs. In addition, other changes in the nature of work, including the loss of security, the erosion of benefits, and stagnant wages exacerbate these pressures, as does the aging of the population and the growing prominence of conditions that begin earlier in life, including mental impairments and HIV-related illness.

Stapleton and colleagues have improved the confidence with which we can state that economic downturns increase the number of applicants. However, the long-term trends in employment play an important role in creating the pressure that emerges in recessions. Thus, although we confidently can predict that some of the pressure on disability compensation programs will relent with the end of a recession we also can predict that until the employment patterns of persons with disabilities match those of persons without, the pressure will return with the next recession.

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Comments on Chapter 2

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There is an old saying that goes something like the following: “the more things change the more they stay the same.” Perhaps nowhere is this more true in the public policy arena than for income support programs for the disabled. Despite significant changes in assistive technology and in the legal status of persons with disabilities, many of the issues raised in Chapter 2 were addressed in a various forums during the 1970s. How do economic factors influence the demand and supply of income support for the disabled? How can enhanced work incentives in disability benefit programs be implemented without making the programs more attractive to the millions of nonrecipients with significant health problems? Can rehabilitation services be effective in enabling disabled persons to participate more fully in the workplace? How consistent is the administration of the programs across different levels of adjudication, among states, and across different types of medical impairments?

My comments refer to the analysis of initial determinations and allowance rates for the Social Security Disability Insurance (DI) and Supplemental Security Income (SSI) programs over the 1976–1993 period. Unlike most studies, this chapter analyses state-level data over the period rather than national data or microdata. The authors argue that this allows them to isolate state-specific effects from the impact of national trends or changes in law. Moreover, the authors analyze the effects for several subperiods in order to examine the stability of their estimates. As they had hypothesized, initial determinations and allowances for disability benefits are strongly correlated with changes in the unemployment rate—i.e., higher unemployment rates lead to increased applications and to more allowances. These findings are similar to those of studies conducted in the 1970s.

NOTE: These comments represent the views of the author and do not reflect any official position of the Congressional Budget Office.

My comments focus on the adequacy of the economic modeling and on some programmatic factors that I think are critical which the authors have either ignored or have treated inadequately. While the authors have done a commendable job in employing state-level data in their modeling, I think they have relied too heavily on their state and time variables to capture the effects of changing program parameters.

The authors address the issues of applying for disability benefits from an economic perspective that individuals with severe health impairments will choose to apply for benefits when the expected returns are high compared with the rewards of market employment. Because this is most relevant for persons applying for DI, my comments will focus on this group of applicants. In their analysis, returns from work are modeled indirectly through unemployment rates, labor force participation rates, and manufacturing's share of total employment. There are no social security-specific variables because the program is not assumed to vary by state. Any differences among states are supposed to be captured within the state dummy variables, and any social security changes would be controlled for through the time variables.

The implications of this specification are that higher unemployment rates increase job search costs, increase worker uncertainty about job stability, and may lead to slower wage growth. Similarly, declining manufacturing employment is assumed to be associated with an increased scarcity of "good" jobs. *Ceteris paribus*, a worsening of any of these conditions would be expected to tilt the scales toward increased applications for DI.

The potential returns from applying for public benefits depend on the level of benefits (both cash and in-kind), the rate at which benefits will change over time, and the expense of applying for the benefits. But an overriding concern is likely to be the probability of actually being allowed to receive the benefits and to retain the benefits over the remainder of the person's working life. Given the relatively stringent eligibility standards for DI, the potential applicant must also weigh the loss of earnings capacity that might occur while the applicant is out of work waiting for a final disability determination. Only a minority of unsuccessful applicants are able to find market employment after they have been denied DI benefits.

The authors use time variables to proxy programmatic changes, but interpreting the variables' coefficients is not straight-forward. The variables may be picking up the impact of macroeconomic or fiscal policy effects not captured by the other instruments in the regression equations. Moreover, even within the arena of social security policy, the coefficients may be influenced by a number of changing program parameters—sometimes operating in opposing directions. During the period, there were significant legislative changes affecting the generosity of benefits and major changes in administrative factors as well. The 1977 and 1980 social security amendments resulted in reduced benefits for a significant portion of the applicant pool, particularly younger adults with families. The phasing-out of student benefits in the Omnibus Budget Reconciliation Act of 1981 also lessened family benefits for applicants with older children. In addition, the administrative climate over the 1977–1982 period was one of much greater scrutiny of applications and allowances, with applications declining by more than 17 percent and initial allowance rates falling from 47 percent in 1977 to 29 percent by 1982. The fact that applications continued to decline amidst the worst recession in the postwar experience is very likely an indication that potential applicants recognized that it was much more difficult to be found disabled by the Social Security Administration than it had been in the previous decade.

As if these programmatic factors weren't enough, several other aspects of program administration also played a role. First, an increasing number of denied applicants are appealing their denials to obtain a hearing with an Administrative Law Judge (ALJ). Moreover, the ALJs are reversing a larger and larger share of the determinations that they review, with the reversal rate climbing from around 60 percent in 1987 to 75 percent in 1992. The result is that more than one-half of the growth in awards from 1986–1992 came from reversals by ALJs. Because the authors' analysis for the 1980–1993 period focuses on initial determinations, this large and critical contributor to program growth is ignored.

Although the quality control data of the Social Security Administration (SSA) have indicated little change in the accuracy of decisions made by state Disability Determination Services (DDSs), there are reasons to suspect that the DDSs may not be as thorough as they were in the early 1980s, thereby leading to higher reversal rates upon appeal.

Despite a 60 percent increase in the number of decisions made by DDSs over the 1986–1993 period, DDS staffing levels were virtually unchanged leading to decisions per staff year rising from 149 in 1986 to 247 in 1993. Such a large increase in productivity over a relatively short period is remarkable, and it would be surprising—at least to certain observers—if none of this gain was in fact attributable to a less comprehensive review of applications by the DDSs.

Another and possibly related pattern is the increasing use of vocational factors in disability determinations. In 1983, only 17.7 percent of awards at the initial determination level depended on vocational factors; the comparable figure for 1991 was 31.7 percent. This trend might be expected to increase the frequency with which the determinations are questioned, because decisions based on vocational considerations rather than solely medical evaluations tend to be more subjective.

Federal court decisions and the SSA's responses to them can also change the calculus facing the potential applicant. Since 1986, SSA has had a policy of acquiescing to circuit court decisions for all cases in that particular circuit. Consequently, instead of having a unified federal policy concerning disability determinations, the standards vary from state to state and from one judicial circuit to another. This raises questions about the interpretation of the coefficients of the state dummy variables as indicators of state-specific effects rather than of programmatic differences.

Despite these limitations, the authors' analysis is encouraging to researchers in the area. Given the aging of the baby-boom population into the stages of life with higher disability rates, it is important to understand better the factors that influence growth in public disability programs. This study and many others like it are necessary if we are to have enough information to adapt our nation's support system for the disabled in an ever-changing society.

Comments on Chapter 2

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The point of departure for the analysis reported in Chapter 2 is that there has been substantial growth in applications and awards under both the Supplemental Security Income (SSI) and Social Security Disability Insurance (DI) disability programs over the period 1988–1992. The chapter represents an effort to look behind the overall trends in program growth and to identify some basic forces that might be contributing to the impressive rates of growth in awards. The authors proceed by gathering evidence from a variety of sources. They make use of econometric analysis, interviews with experts, and documentary materials on program changes. This is a very appealing approach to developing a complete view of the evolution of two complex programs.

In the comments below, I will attempt to accomplish three things. First, I will highlight several key observations made by the authors about the nature of growth during the period. Second, I will review their list of key forces that may be most important for understanding the exceptionally high growth in SSI and DI awards in the mental illness category. Finally, I will comment in some detail on three forces that may offer the most promising explanations and discuss what I found to be most persuasive in the authors' work and where more analysis may be needed.

BASICS

In assessing the growth in disability awards under SSI and SSDI, the authors decompose growth by two variables: 1) program status—DI-only, SSI-only, and DI/SSI concurrently; and 2) impairment class—i.e., disease class. When the data are stratified by these two factors, a number of important observations immediately emerge that serve to

focus the rest of their work. The first observation is that even though changes in both application and allowance rates occurred during the 1988 to 1992 period, it was the rise in application rates that made the largest contribution to the growth in awards for all three program classes (83 percent for DI-only, 91.8 percent for DI/SSI, and 91.2 percent for SSI-only). The second observation is that the growth in both applications and allowance rates for the mental illness class were well above the overall rates of growth for all impairments. For example, for the SSI-only program class, the growth in applications was 86 percent for mental illness, compared to 66.9 percent for all conditions. The third observation is that the growth in the application rate for the mental illness class was above that for all other conditions, thereby driving up the growth in awards for this impairment group above that for all impairments.

EXPLANATIONS

Five basic explanations are offered in Chapter 2. Table 1 associates each type of explanation according to which component of the award rate it is most likely to affect. The likely impact of changes in the Social Security Administration criteria are clear and were relevant primarily to mental illness, so I will not address that factor in any detail here. State outreach activities have also been well documented and discussed by the authors, so that I will not deal with that policy change.

Cost Shifting

This factor involves economic choices that differ from those typically discussed in the context of disability policy. The choices made in cost shifting behavior are generally not initially made by program beneficiaries or potential beneficiaries. Issues related to cost shifting are among the most important discussed by the authors. They present some very suggestive econometric evidence showing that decisions about the structure of state income support programs made by state governments may have large impacts on federal disability programs and the federal budget. The primary policy analyzed by the authors is the impact of

Table 1 Explanations of Observed Trends

Explanations	Applications	Allowance
SSA criteria		√
State outreach	√	
Cost shifting	√	
Recession	√	
Demographics/need	√	

cuts in state General Assistance (GA) programs. They show that the impact on growth in awards for the mental illness category is especially large and significant.

It is important to note that there is more to the cost shifting story than GA cuts. A question implied by the line of research pursued by the authors is: What has changed for states to make cost shifting more attractive in the late 1980s and early 1990s? Part of the explanation offered by the authors relates to fiscal pressure on state budgets due to 1) the economic slowdown of the early 1990s, and 2) limits placed on growth and taxation at the state level. Also growth in nonhealth and human service segments of state budgets, such as prisons, may have caused states to more aggressively pursue other ways to pay for income support and medical assistance for indigent people.

A second explanation is important in explaining the growth of awards for mental disability. During the late 1980s a number of states were decentralizing their public mental health systems. Decentralization was usually accompanied by altered financial incentives for local government. Among the most important changes was abandoning deficit funding of local mental health programs. The result is strong incentives to enroll people in programs where federal dollars can be captured, since localities can keep the state dollars offset by the federal monies. This is an area where more probing would undoubtedly be valuable.

Recession

The authors advance two explanations about how the recession generates the observed pattern of awards by impairment class. The first

argues that the recession hits “marginal” workers hardest. The second posits that the recession causes mental illness. The evidence on the first is reasonably strong. There is also other evidence suggesting that the marginal worker effect is not a transitory phenomenon. Recent papers by Cutler and Katz (1991) and Levy and Murname (1992) show that throughout the 1980s demand for labor shifted away from low-skill, low-education workers. The severely mentally ill disproportionately fall into this group.

The second explanation offered, that recessions cause mental illness, is not very persuasive. If one examines rates of major mental disorders in the 1980-1983 and the 1990-1991 periods, one is struck by the stability in prevalence rates. Moreover, if one examines the research on mental health and work where there exists some opportunity to sequence events, the impact of mental health on work is far stronger than the effect of work on mental illness.

The last point builds on the impact of mental illness on social outcomes such as work. Virtually all the research in this area suggests that mental disorders lead to elevated rates of divorce, early marriage and child-bearing in women, and lower levels of household income. This accords well with the observations that 1) SSI mental illness awardees are more female than the overall SSI population; and 2) females in the mental illness impairment group tend to be older than other SSI females.

CONCLUSIONS

The authors have carefully examined available evidence and used good sense and solid statistical analysis to study SSI award growth by impairment class. They have offered some important empirical clues about what matters most. A particularly unsettling finding relates to cost shifting behavior. The result suggests that state welfare reforms may lead to shifting of responsibility to federal programs and new pressures on the federal budget. I believe they are pointing to key factors that need immediate analysis in order to understand the consequences of our newest political currents as they become policy.

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