NBER WORKING PAPER SERIES

ARE THE YOUNG BECOMING MORE DISABLED?

Darius Lakdawalla
Jay Bhattacharya
Dana Goldman

Working Paper 8247
http://www.nber.org/papers/w8247

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
April 2001

This research was supported by the Health Care Financing Administration under a contract with the RAND/UCLA/Harvard Center for the Health Care Financing Policy Research (500-95-0056), and by a grant from the National Institutue on Aging (P01AG08291). The views expressed herein are those of the authors and not necessarily those of the National Bureau of Economic Research.

Are the Young Becoming More Disabled?
Darius Lakdawalla, Jay Bhattacharya and Dana Goldman
NBER Working Paper No. 8247
April 2001
JEL No. I1

ABSTRACT

A fair amount of research suggests that health has been improving among the elderly over the past 10 to 15 years. Comparatively little research effort, however, has been focused on analyzing disability among the young. In this paper, we argue that health among the young has been *deteriorating*, at the same time that the elderly have been becoming healthier. Moreover, this growth in disability may end up translating into higher disability rates for tomorrow's elderly. Using data from the National Health Interview Survey, we find that, from 1984 to 1996, the rate of disability among those in their 40s rose by one full percentage point, or almost forty percent. Over the same period, the rate of disability declined for the elderly. The recent growth in disability has coincided with substantial growth in asthma and diabetes among the young. Indeed, the growth in asthma alone seems more than enough to explain the change in disability. Therefore, we argue that the growth in disability stems from real changes in underlying health status.

Darius Lakdawalla
RAND
1700 Main Street
Santa Monica, CA 90407
and NBER
darius_lakdawalla@rand.org

Dana Goldman
RAND
1700 Main Street
Santa Monica, CA 90407

Jay Bhattacharya
RAND
1700 Main Street
Santa Monica, CA 90407

1 Introduction

During the early 1970s, a great deal of concern was raised about apparent increases in the disability of the old.[1] Several researchers argued that increases in longevity amounted to extending the amount of time spent in disability by the elderly. Thus, they predicted, increases in longevity would inevitably be accompanied by growth in the incidence of disability.[2] These fears were allayed with the start of the 1980s. Indeed, a consensus is beginning to emerge that the health of the elderly has been improving since the early 1980s.[3] It would be easy, even attractive, to interpret this as the start of a "golden age" in health, where improvements in medical technology and health knowledge have begun to result in steady health improvements. However, research to date has only been able to establish health improvements for the elderly. Little attention has been paid to the young. We will argue that the young have actually become sicker since the start of the 1980s, and that health technology is still far from overcoming disability. In fact, some evidence suggests that this rise in disability among the young will translate into a rise in disability among the future elderly.

Previous research has focused almost exclusively on disability among the elderly. However, focusing attention on disability trends among the near-elderly and even the young reveals important insights. There seem to be at least two important reasons to

---

[1] See Crimmins, Saito, and Ingegneri (1989). For an opposing viewpoint, see Waidmann, Bound, and Schoenbaum (1995).

[2] Gruenberg (1977).

[3] See Manton, Corder, and Stallard (1997), Crimmins, Saito, and Reynolds (1997), and Schoeni, Freedman, and Wallace (2001).

analyze separately disability among the young. First, understanding disability trends among the elderly does not help us understand them among the young, because trends among the young often move counter to trends among the elderly. While disability was constant or rising for the elderly during the mid to late 1970s, we find that it actually *fell* for the young over the same period. Similarly, we find that it fell for the elderly during the mid-1980s and early 1990s, but *rose* for the young. Second, comparing trends in the disability of the young and old helps us understand changes in the age-profile of disability. Recent years have seen the age-profile of disability become much flatter. As the young have become sicker and the old have become healthier, the link between age and disability has weakened.

In this paper, we present results from the National Health Interview Survey (NHIS), and the Medicare Current Beneficiary Survey (MCBS) consistent with these two ideas. To derive our results, we rely on a useful method for constructing smoothed age-profiles of disability from the sample sizes usually present in nationally representative health data. We also discuss how our results are consistent with the previous research that has focused on the elderly. We begin by presenting a method for estimating the age-specific incidence of disability. This method is then applied to data in the NHIS, to construct age-profiles of disability for two periods: 1975 to 1984, and 1984 to 1996. We obtain the surprising result that the young have become sicker recently, even as the old have become healthier.

2 Methods

Constructing age-specific profiles of disability invariably runs into a problem of sample size. Even in a large, nationally representative sample such as the NHIS, the sample size at a single age turns out to be quite small to construct reliable estimates of disability. To address this problem, we rely on the idea that disability prevalence should change smoothly across ages and years. Therefore, we take the raw age-specific estimates of disability and smooth them across ages and years, to construct an age-profile of disability.

In order to describe the method we use to produce smooth age-specific prevalence functions—the overlap polynomial method[4]—it is helpful to introduce some notation. The NHIS is a repeated cross section with hundreds of thousands (say, *N*) observations. Each observation *i*, taken in $year_i$, consists of information about *i*'s self-reports regarding disability limitations d_i and age (age_i).[5] Given these data, we estimate the following logit model of disability prevalence using the NHIS data from 1970, 1978, 1984, 1990, and 1996:

$$P[d_i \mid age_i, year_i] = \frac{1}{1 - \exp(g_1(age_i;\beta_1) + g_2(year_i;\beta_2) + g_1 * year_i\beta_3 + g_2 * age_i\beta_4)} \quad (1)$$

In effect, we calculate the prevalence of disability at each age and year, in the context of a logistic distribution. The *g* functions allow the presence of disability to vary flexibly with the year of observation and the age-cohort of the respondent. Age and year enter the model through the g functions, which are specified using an overlap polynomial.

---

[4] MaCurdy, Green, and Paarsch (1990) are the first to use this method in economics. Bhattacharya, Garber, and MaCurdy (1997) use this method to smooth cause-specific mortality profiles for the elderly.

[5] It is possible to adapt this method to use other covariates.

The age polynomials are defined as:

$$g_1(age_i;\beta_1)=\sum_{j=0}^{K}\left(\Phi\left(\frac{age_i-k_{j+1}}{\sigma_1}\right)-\Phi\left(\frac{age_i-k_j}{\sigma_1}\right)\right)p_j\left(age_i;\beta_1\right), \qquad (2)$$

where $p_j\left(age_i;\beta_{1j}\right)$ $j=0,...,K+1$ are all n^{th}-order polynomial in age_i.[6] The terms $k_0\ldots k_{K+1}$ are called "knots," and σ_1 is a smoothing parameter, all of which are fixed before estimation. With this smoothing technique, the knots define age intervals. When the smoothing parameter approaches zero, the age-profile over each interval simply equals the average disability level within that interval. In this case, the age-profile reduces to a step function, where each interval constitutes a separate step.[7] As the smoothing parameter increases, the estimator uses increasingly more information from outside each interval. In the extreme, as the smoothing parameter approaches infinity, there is no meaningful distinction between any two intervals. Allowing nonzero values of the smoothing parameters eliminates the sharp discontinuity of the growth rates at the knots. One advantage of overlapping polynomials over traditional splines is that the function and all its derivatives are automatically continuous at the knots without imposing any parameter restrictions.

---

[6] We use first-degree polynomials. Though we experimented with higher order polynomials, we find that they add to the costs of computation with no change in the final results.

[7] When this is the case, $\Phi(.)$ reduces to an indicator function equal to zero if $age < k_j$ and one if $age \geq k_j$.

The overlap polynomial for year, g_2, and its interaction with g_1 allow for flexible changes in the age-prevalence relationship over time. It is defined as:

$$g_2(year_i;\beta_2)=\sum_{j=0}^{M}\left(\Phi\left(\frac{year_i-m_{j+1}}{\sigma_2}\right)-\Phi\left(\frac{year_i-m_j}{\sigma_2}\right)\right)q_j\left(year_i;\beta_2\right) \qquad (3)$$

As before, the m terms represent the knots, while the σ term represents the smoothing parameter.

The object of the maximum likelihood logit estimation is to obtain consistent estimates for β_1, β_2, β_3 and β_4 -- $\hat{\beta}_1$, $\hat{\beta}_2$, $\hat{\beta}_3$ and $\hat{\beta}_4$ respectively. Using these estimates, it is straightforward to generate age-prevalence profiles representative for any particular year. Let $\rho_{t,a}$ be the disability prevalence among *a*-year olds in year *t*. Then,

$$\rho_{t,a}=\frac{1}{N}\sum_i P\left[d_i=1\,|\,age_i=a,year_i=t;\hat{\beta}_1,\hat{\beta}_2,\hat{\beta}_3,\hat{\beta}_4\right] \qquad (4)$$

3 Results

We now present the results of calculating age-profiles of disability in NHIS data from 1970 to 1996. Later, we will show how these estimated trends are consistent with those estimated using MCBS data from 1992 to 1996. Since the MCBS and NHIS ask different types of disability questions, they are impossible to compare directly. However, both sets of results are broadly consistent with each other.

3.1 Data Summary

The NHIS is a nationally representative set of individual-level data on demographics and health status, designed to represent the non-institutionalized population. It has been collected every year since 1957. The stability of the NHIS survey design makes it particularly attractive for analyzing long-run trends in disability. Although the survey was redesigned in 1982 and 1997, it is possible to construct quantitatively consistent estimates from 1984 to 1996, and qualitatively consistent estimates from 1975 to 1996.

Prior to 1982, the NHIS disability data are based on an activity limitation variable. The NHIS asked respondents whether their health limited their ability to perform work or housework. From their answers, they were then grouped into four categories: (1) Unable to perform work or housework; (2) Limited in kind or amount of work or housework; (3) Limited in other activities, besides work or housework; (4) Not limited in any activities. We categorize all individuals in category 4 as nondisabled. We also tried less stringent definitions, such as those individuals in groups 3 and 4, and found similar results. After 1982, the NHIS continued to ask the same question, but with one subtle difference. Retirees 45 years or older were asked different questions before and after 1982. Prior to that year, retirees were asked if their health would prevent them from working. Beginning with 1982, they were asked if their health interfered with their major activity, which need not be working. Not surprisingly, therefore, disability among older individuals falls substantially in 1982, because elderly retirees are allowed to report a less strenuous major activity. As a result, we will present changes in activity limitation from 1975 to 1984 for those under 45, but only from 1975 to 1980 for those at or above age 45.

After 1982, however, the NHIS asks a different question more appropriate for analyzing disability. The survey began asking all people if they need help with personal care. This question is preferable to the activity limitation question, in which individuals are allowed to choose their major activity. Since more disabled individuals will tend to report a less strenuous major activity, the activity limitation question will tend to understate the absolute value of changes in disability. Based on a respondent's answer to the personal care question, she was placed in one of three categories: (1) unable to perform personal care needs; (2) limited in performing other routine needs; (3) not limited in personal care or routine needs. Using this question, we have consistent measures of disability for all age groups from 1984 to 1996.

To motivate the more formal statistical analysis to come, we present Tables 1 and 2. The tables provide evidence of a sharp reversal of trends in 1984. Table 1 reports rates of health in the young, and Table 2 measures it for the old. In both tables, the values from 1984 to 1996 reflect the absence of a need for personal care. Prior to that, they reflect the absence of an activity limitation. In Table 1, from 1975 to 1984, nearly every 5-year age category is becoming less healthy. The one exception is for 30-34 year-olds, whose health is basically unchanged. In contrast, from 1984 to 1996, nearly all the young age groups are becoming healthier. The two exceptions are 30-34 year-olds and 55-59 year-olds, both of which have roughly constant health. One limitation of the NHIS is that it covers only the non-institutionalized population. As we discuss below, however, this limitation does not substantially affect the interpretation of our results.

Table 2 reports rates of health for the population over 60. From 1975 to 1980, this is given by the absence of an activity limitation, but from 1984 to 1996, it is given by the absence of a need for help with personal care. There is very little change in disability from 1975 to 1980. This contrasts with increases in health among the young during the same time period. This could be because the time period is too short. Crimmins, Saito, and Ingegneri (1989) argue that disability actually rose for the elderly from 1970 to 1980, although Waidman, Bound, and Schoenbaum (1995) take issue with this finding by arguing that disability was constant. There is very little evidence, however, that the elderly were becoming any healthier over this time period. At the very least, it seems that the young were becoming relatively healthier, compared to the old, during the late '70s.

From 1984 onwards, however, we find a strikingly different pattern for the elderly. Rates of disability decline for all age groups above the age of 65. Most importantly, these declines are much larger for the older age groups. This is consistent with the overall pattern of increasing health for the old, but declining health for the young, from 1984 onwards. It is also consistent with the evidence presented in Manton et al (1997), who find that declines in disability have occurred for all the elderly, but have been substantially larger for the oldest old.

3.2 Estimating Age-Profiles of Disability

The data in Tables 1 and 2 are quite provocative, but they are also quite noisy. They jump around from one year to the next, and from one age to the next. To analyze changes in disability more formally, we apply our smoothing procedure to the disability data. We should emphasize that the choice of knots and smoothing parameters do not affect any of the qualitative results for the direction of the change in disability. They have rather small effects on the magnitudes of the change, and effects on the visual smoothness of the graphs. As a result of the change in the definition of disability, we apply the smoothing procedure separately for all years from 1975 to 1982, and then to all years from 1984 to 1996.

Figure 1 illustrates the smoothed 1975 NHIS data.[8] The middle line represents the estimated proportion of the non-institutionalized population without disability, while the upper and lower lines demarcate the 95% confidence interval for these estimates. The standard errors are derived pointwise, using the delta method.[9] At each point, the standard error is conditional on the given age and year. The rate of health declines with age at an increasing rate. The Figure corresponds to a smoothed version of the values in Tables 1 and 2. The graph for the entire, rather than just the non-institutionalized population, would be shifted up, more so for the elderly. Institutionalization affects well under 1% of the population under age 60. By comparison, 12.89% of the population over age 85 was institutionalized in 1970 (Crimmins, Saito, and Ingegneri 1989).

---

[8] For this figure, the age polynomials used the smoothing parameter 10, and the knots 27, 34, 41, 48, 55, 62, 70, 77, 84, and 91.

[9] Define $\hat{\rho}(a,t)$ as the estimated rate of health at age a and year t, and define X as the vector containing the overlapping polynomials $[g_1\, g_2]$. Finally, define $\hat{\beta}$ as the vector of coefficients $[\hat{\beta}_1 \quad \hat{\beta}_2 \quad \hat{\beta}_3 \quad \hat{\beta}_4]'$. According to the delta method, the variance of the estimate is approximately:

$$V(\hat{\rho}) \cong [\hat{\rho}(1-\hat{\rho})]^2 X * V(\hat{\beta}) * X'$$

Figure 2 illustrates the change in the proportion of healthy people among the population under age 45, from 1975 to 1984.[10] The middle line represents the change in the proportion of healthy people, and the two dashed lines mark out the 95% confidence interval. Over this period, health is improving for people in their 20s and people in their 40s, but it is flat for people in their 30s. This is consistent with other evidence that disability rose from 1975, but began to fall thereafter (Waidmann, Bound, and Schoenbaum 1995). This pattern does not obtain for the old. Figure 3 illustrates the same change among the over 45 population, from 1975 to 1980.[11] We continue to find improvements in health for those in their late 40s, but we find essentially unchanged health for people over the age of 55. These figures together suggest relative improvements in the health of the young, starting in 1975.

According to figures 4 and 5, these improvements reversed themselves from 1984 to 1996.[12] In both figures, the middle line represents the estimated change in the proportion of the population that is healthy, while the dashed lines delineate the 95% confidence interval for the point estimates. Standard errors are once again calculated according to the delta method. From 1984 to 1990, the young stopped getting healthier, according to Figure 4. On the other hand, the elderly began to get substantially healthier. This reversal

[10] The associated age polynomials used a smoothing parameter of 5, and knots at 23.5, 27, 30.5, 34, and 37.5. The year polynomials used a smoothing parameter of 10, and knots at 77, 79.5, and 82.

[11] The associated age polynomials used a smoothing parameter of 10, and knots at 50, 57, 64, 71, 78, and 85. The year polynomials used a smoothing parameter of 5, and knots at 76.7 and 78.3.

[12] These figures used age polynomials with a smoothing parameter of 15, and knots at 25, 35, 45, 55, 65, 75, and 85. They used year polynomials with a smoothing parameter of 8, and knots at 86, 90, and 94.

of trend continued. From 1990 to 1996, the young actually began to get less healthy, while the elderly continued to get healthier. The change in disability is quite significant. The rates of disability increased among those in their 40s by nearly one full percentage point. This is extremely large relative to the 2.5% rate of disability among people in this age group. This translates into a 35 to 40 percent increase in the disabled population at these ages. In contrast, the rate of disability among the elderly fell by about one full percentage point.

One limitation of the NHIS is that it excludes the institutionalized population. This limitation, however, cannot be driving the results. We estimate that the rate of disability falls by about one full percentage point for people in their 40s, from 1990 to 1996. In 1990, only about 0.35% of the population aged 40 to 45 resided in an institution.[13] Even if every institutionalized person relocated to the community, this would not explain even half of the increase in disability we report.

For the elderly, adding the institutionalized population to these graphs would only reinforce the basic patterns of change. From 1970 to 1980, there were substantial increases in the rate of institutionalization among those over age 80, and only small decreases—about three-tenths of a percentage point—in the rate of institutionalization for those aged 60 to 80 (Crimmins, Saito, and Ingegneri 1989). On the other hand, from 1984 to the middle of the 1990s, there were even more substantial decreases in the rate of institutionalization among the elderly (Lakdawalla and Philipson 1999). Among the

[13] Based on authors' calculation using the Public Use Microdata Samples of the 1990 Census (Ruggles and Sobek 1997).

elderly, changes in the rate of institutionalization only reinforce the patterns observed here, so long as the institutionalized population is at least as disabled as the non-institutionalized, disabled population.

We can examine more directly the effect of institutionalization for the elderly using data from the Medicare Current Beneficiary Survey (MCBS) Cost and Use File, from 1992 to 1996. The MCBS is a yearly rotating panel data set, designed to be representative of the Medicare population, both inside and outside institutions, in each year. Its annual sample size is about 10,000. As a result, we use it as a representative data set for the population over the age of 65. Disability in the MCBS is defined as having any difficulty with or inability to perform bathing or showering, dressing, eating, getting in and out of bed or chairs, walking, and using the toilet. We define a person as disabled if she has three or more of these conditions. The estimated age-specific change in health from 1992 to 1996 is presented in Figure 6.[14] The middle line is the estimated change in the proportion of the healthy population, while the upper and lower lines mark the 95% confidence interval for this estimate. The MCBS samples are rather small below age 70 and above age 85. This is reflected in the wide standard error bands for these age regions. Outside these regions, however, we find evidence of significant increases in health for the entire elderly population from 1992 to 1996.

Our results for changes in disability can also be framed in the context of cohorts. Figures 4 and 5 show the changes in disability at specific ages, across years. Figure 7 recasts

[14] The figure uses age polynomials with a smoothing parameter of 15, and knots at 70, 80, and 90. The year polynomials use a smoothing parameter of 4, and knots at 92, 94, and 96.

these results in terms of birth cohorts.[15] For five observed birth cohorts, the figure shows the estimated proportion of the population not in need of care, and the way in which this proportion changes with age. The cohorts are ten years apart. The youngest was 22 years old in 1984, while the oldest was 52 in 1984. At the same age, the younger cohorts are uniformly less healthy than the older cohorts. In addition, the younger cohorts are becoming disabled at a more rapid rate than the older cohorts. The younger cohorts are thus more disabled both in terms of levels, and in terms of rates of change. They are starting out sicker, and this gap in health only widens with aging.

4 Explaining Changes in Disability

Explaining the relative increase in disability among the young represents the next challenge. In this section, we present some possible explanations and evidence consistent with them. There are at least two types of explanations, which are not mutually exclusive. First, the growth in disability could be the result of real deterioration in underlying health status. Alternatively, they could be the result of increased incentives to claim disability insurance among the young.[16] More generous disability benefits could induce more people to report disability. This incentive would be much stronger for the young.

Substantial growth in the prevalence of asthma and of diabetes seems to coincide with the growth in disability among the young that we have identified. The data for asthma are presented in Figure 8. We apply our smoothing procedure to age-specific data on the

---

[15] The figure uses age polynomials with a smoothing parameter of 2, and knots at 30, 35, 40, 45, 55, and 55. The year polynomials use a smoothing parameter of 2, and knots at 85, 88, 91, and 94.

[16] See, for example, Autor and Duggan (2000).

prevalence of asthma, from the NHIS.[17] The figure reports the change in prevalence from 1984 to 1996. There was significant growth in asthma for all age groups under 65, and it was particularly high among people in their 20s and 30s. For these age groups, the prevalence of asthma grew by about three full percentage points. Even more importantly, there was no statistically significant growth from 1984 to 1990. These trends mirror the trends in disability. To put these results in perspective, if approximately one-third of asthmatics report an activity limitation, this would explain the entire growth in disability. This seems more than plausible: according to the 1996 NHIS, *two-thirds* of asthmatics between the ages of 18 and 65 reported an activity limitation of some sort. Growth in asthma alone would be more than enough to account for the change in disability.

Although the NHIS data fail to confirm this finding, other researchers using a smaller scale study—the Behavioral Risk Factor Surveillance System (BRFSS)--have reported growth in diabetes concentrated among the young over this same time period (Mokdad et al 2000). According to the BRFSS data, diabetes prevalence increased from 2.6% to 3.7% among 30-39 year-olds, from 3.6% to 5.1% for 40-49 year-olds, from 7.5% to 9.8% for 50-59 year-olds, from 10.9% to 12.8% for 60-69 year-olds, and from 11.6% to 12.7% for those over 70. In all, prevalence increased by 70% for those in their 30s, by 40% for those in their 40s, by 30% for those in their 50s, by 17% for those in their 60s, and by 10% for those above 70. These percentage increases were heavily skewed towards the young, in large part because of growth in obesity among the younger age groups. Growth

[17] The age polynomials use a smoothing parameter of 20, with knots at 25, 35, 45, 55, 65, 75, and 85. The year polynomials use a smoothing parameter of 8, with knots at 86, 90, and 94.

in diabetes would have had a substantial impact on disability. According to the 1996 NHIS, 80% of diabetics aged 18 to 65 report some form of activity limitation.

Analysis of the self-reported health status variable in the NHIS also suggests that the young have been growing sicker, while the old have been growing healthier. The NHIS asks each respondent if her health is excellent, very good, good, fair, or poor. We analyzed age-specific changes in the proportion of the population reporting excellent or very good health. From 1984 to 1990, this proportion increases at nearly all ages, but it increases much more substantially for people over the age of 60. From 1990 to 1996, however, it falls significantly for people under 50, is constant for people between 50 and 60, and rises for those over 60.[18] All three of these pieces of evidence—growth in asthma, growth in diabetes, and deterioration in self-reported health—are consistent with deterioration in the underlying health of the young.

Indirect evidence exists to support the alternate hypothesis of changes in the incentives for disability insurance. Analysis using the NHIS shows that, over the entire period from 1970 to 1996, overall disability fell much more rapidly among the more educated. This difference in growth rates, however, does not appear when the data are analyzed within employment status groups. That is, among the employed and among those not in the labor force, disability is growing at the same rates across education groups. This suggests that growth in disability is coming from less educated people who are leaving the labor force

---

[18] These changes in self-reported health also appear in data from the Health and Retirement Study (HRS). HRS data show that, between 1992 and 1998, the proportion of 51-56 year-olds reporting poor or fair health rose significantly, by more than two full percentage points.

at higher rates. Since incentives for disability insurance are also likely to be strongest among this group, this piece of evidence is consistent with an explanation that stresses the importance of disability insurance.

5 Conclusions

Over the past fifteen years, the young have reported growth in disability, even as the old have become relatively healthier. This contrasts with the experience of the late 1970s and early 1980s, during which the reverse was true. We offered some suggestive evidence that this resulted from real deterioration in the underlying health of the young. Specifically, we showed that the young in particular have experienced growth in asthma, diabetes, and deterioration in self-reported health status. We also offered evidence consistent with the alternate hypothesis that these patterns have resulted from changes in disability insurance eligibility requirements.

The next logical avenue of research would be to provide a more detailed and formal explanation of these trends. One could calculate the proportion of growth due to changes in, for example, asthma and diabetes. Alternatively, it might be possible to analyze changes in disease prevalence more systematically, and calculate the contribution to disability of changes in each disease condition. Data on employment status or disability insurance requirements might then be brought to bear in order to calculate the proportion of disability growth explained by changes in disability insurance. A similar strategy may be adopted for explaining the decline in disability among the young. One could relate estimated changes in disease prevalence to changes in disability.

Disability is not just a feature of old age. Economic development and technological change in health care have allowed people *of all ages* to live in frailty with greater ease than at any other time in history. Any analysis of disability must account for changes in disability among the young as well as the elderly. Understanding disability among the young provides insight into future disability trends among the elderly. It is also important in its own right, since disability trends among the young can and do differ from trends among the old.

References

Autor, David and Mark Duggan (2000). "Disability Recipiency and the Decline in Unemployment." Mimeo, August 2000.

Bhattacharya, Jay, Alan Garber, and Thomas MaCurdy (1996). "Cause-Specific Mortality Among Medicare Enrollees." Working Paper No. 5409, National Bureau of Economic Research. Cambridge, MA: National Bureau of Economic Research.

Bound, John, and Timothy Waidmann (2000). "Accounting for Recent Declines in Employment Rates Among the Working-Aged Disabled." Working Paper 7975, National Bureau of Economic Research. Cambridge, MA: NBER.

Crimmins, Eileen M., Yasuhiko Saito, and Sandra L. Reynolds (1997). "Further Evidence on Recent Trends in the Prevalence and Incidence of Disability Among Older Americans From Two Sources: the LSOA and the NHIS." *Journal of Gerontology* 52B(2): S59-S71.

Crimmins, Eileen M., Yasuhiko Saito, and Dominique Ingegneri (1989). "Changes in Life Expectancy and Disability-Free Life Expectancy in the United States." *Population and Development Review* 15(2): 235-267.

Gruenberg, E.M. (1977). "The Failures of Success." *Milbank Quarterly* 55: 3-34.

Lakdawalla, Darius, and Tomas Philipson (1999). "Aging and the Growth of Long-Term Care." Working Paper No. 6980, National Bureau of Economic Research. Cambridge, MA: National Bureau of Economic Research.

MaCurdy, Thomas, David Green, and Harry J. Paarsch (1990). "Assessing Empirical Approaches for Analyzing Taxes and Labor Supply." *Journal of Human Resources* 25(3): 415-90.

Manton, Kenneth G., Larry Corder, and Eric Stallard (1997). "Chronic Disability Trends in Elderly United States Populations: 1982-1994." *Proceedings of the National Academy of Science* 94: 2593-2598.

Mokdad, Ali H., et al (2000). "Diabetes Trends in the U.S.: 1990-1998." *Diabetes Care* 23(9): 1278-83.

Ruggles, Steven, Matthew Sobek, et al. (1997). *Integrated Public Use Microdata Series: Version 2.0*. Minneapolis, MN: Historical Census Projects, University of Minnesota.

Schoeni, Robert F., Vicki A. Freedman, and Robert B. Wallace (2001). "Persistent, Consistent, Widespread, and Robust? Another Look at Recent Trends in Old-Age Disability." *Journal of Gerontology*, forthcoming.

Waidmann, Timothy, John Bound, and Michael Schoenbaum (1995). “The Illusion of Failure: Trends in the Self-Reported Health of the U.S. Elderly.” *Milbank Quarterly* 73(2): 253-287.

Figure 1: Age-Specific Proportions of Healthy People, 1975 NHIS.

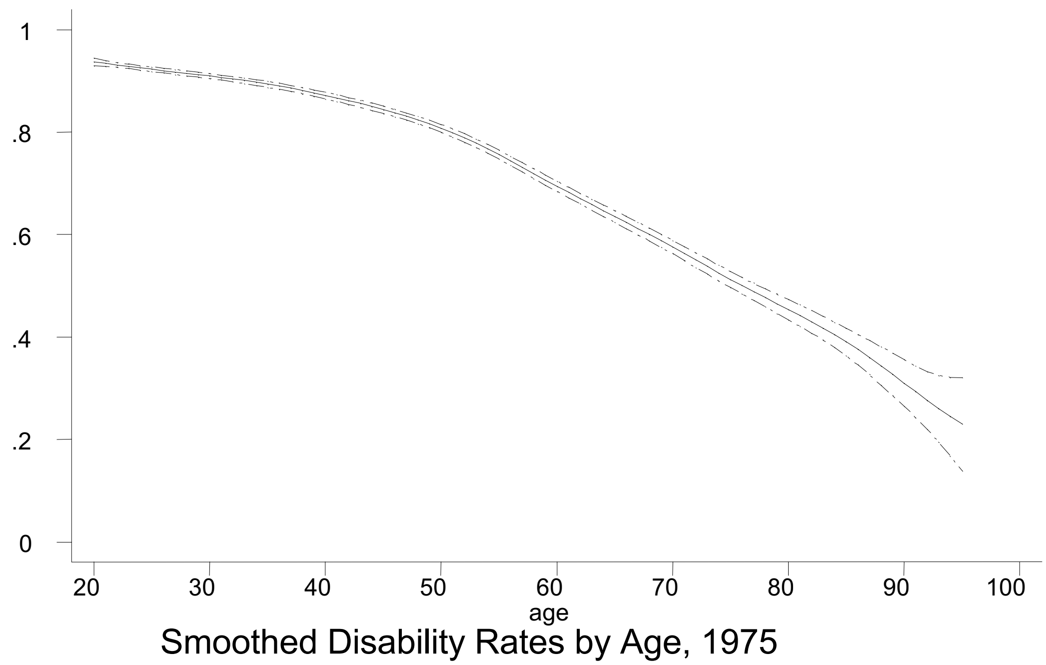

Figure 2: Change in Health from 1975 to 1984, Age 20-45.

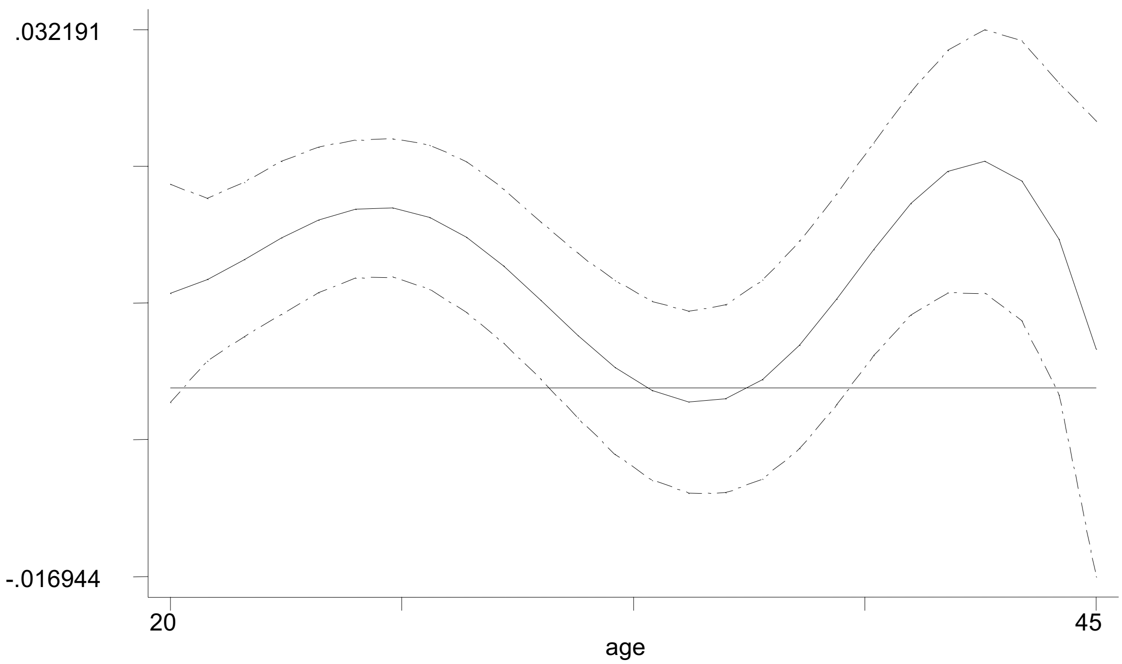

Figure 3: Change in Health for Population Over 45, 1975-1980.

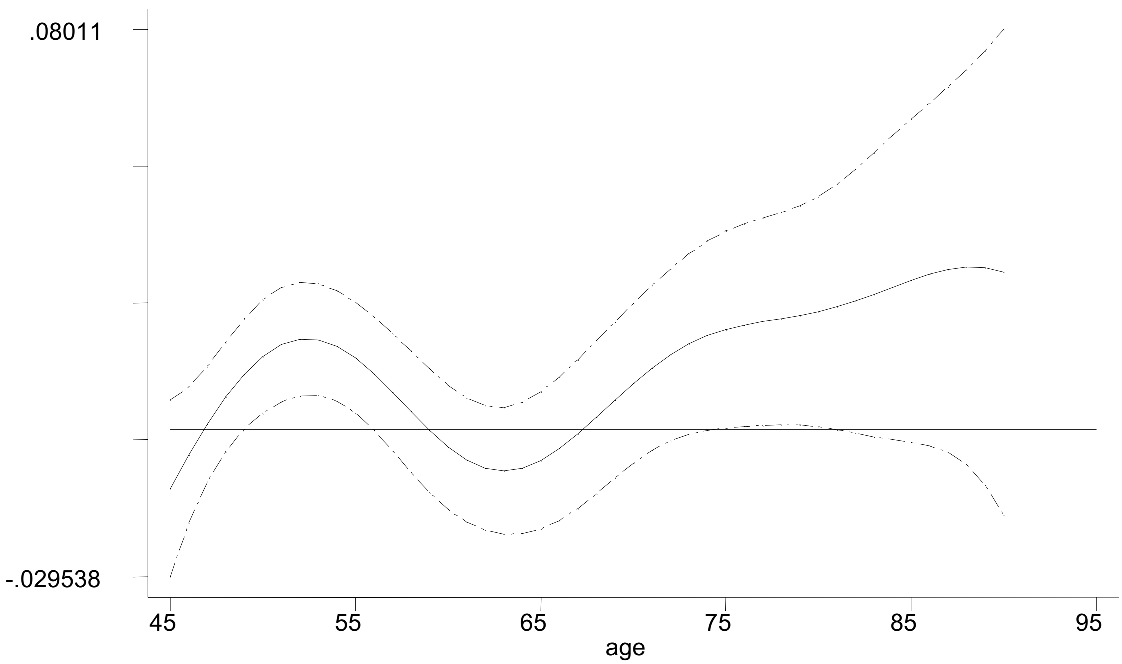

Figure 4: Change in Proportion of Population Not Needing Care, 1984-1990.

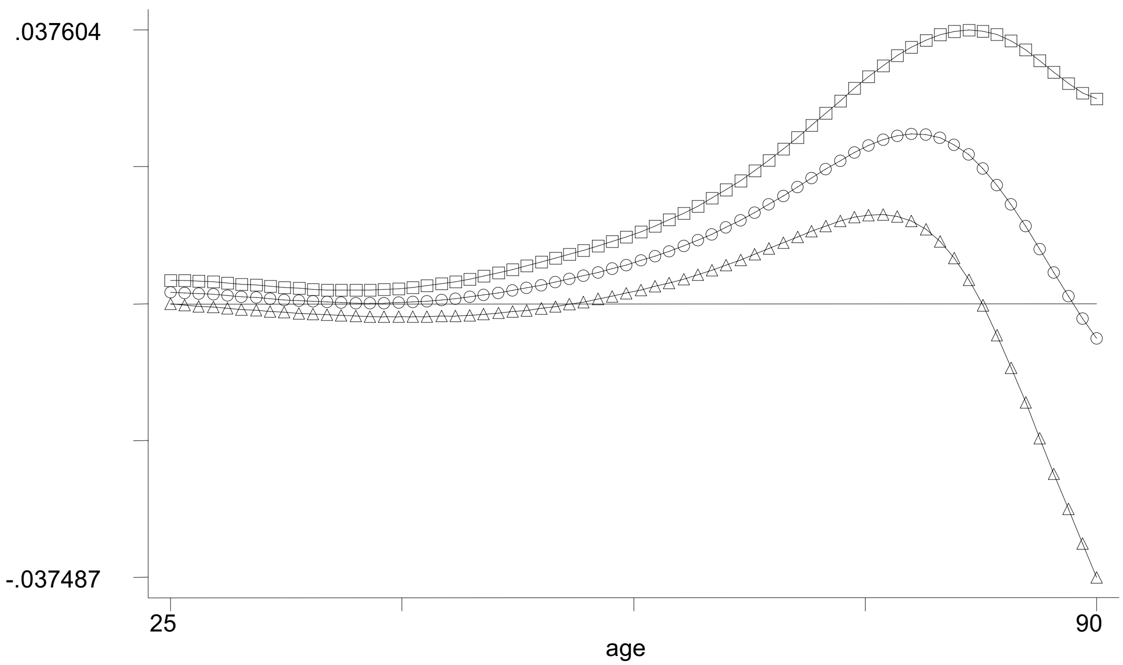

Figure 5: Change in Proportion of Population Not Needing Care, 1990-1996.

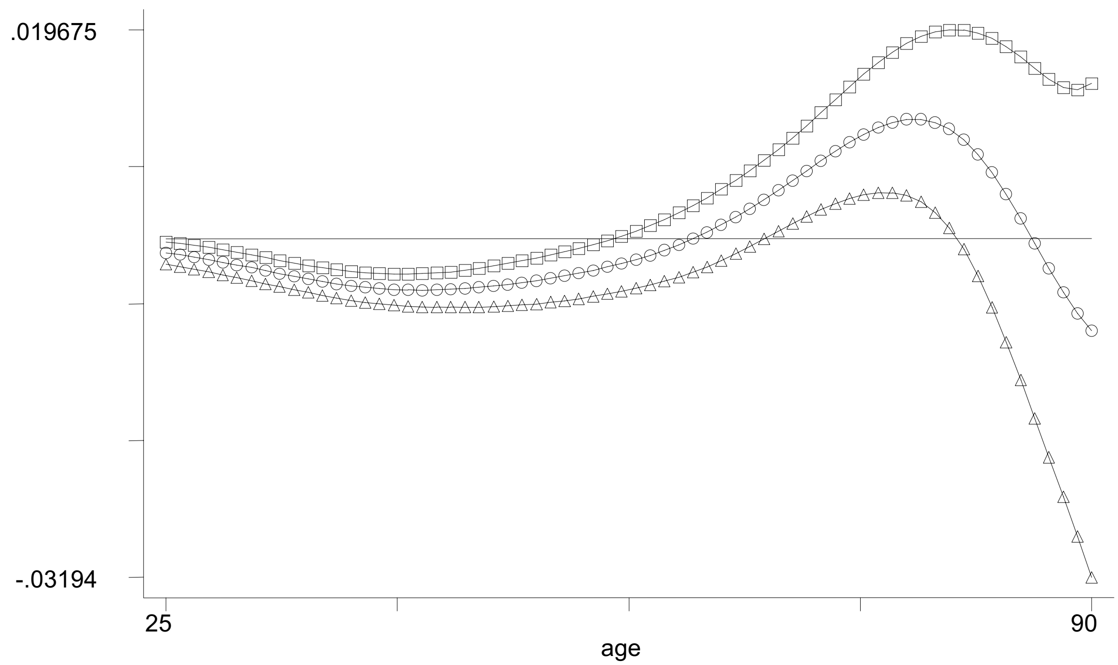

Figure 6: Age-specific changes in health, 1992-1996 MCBS.

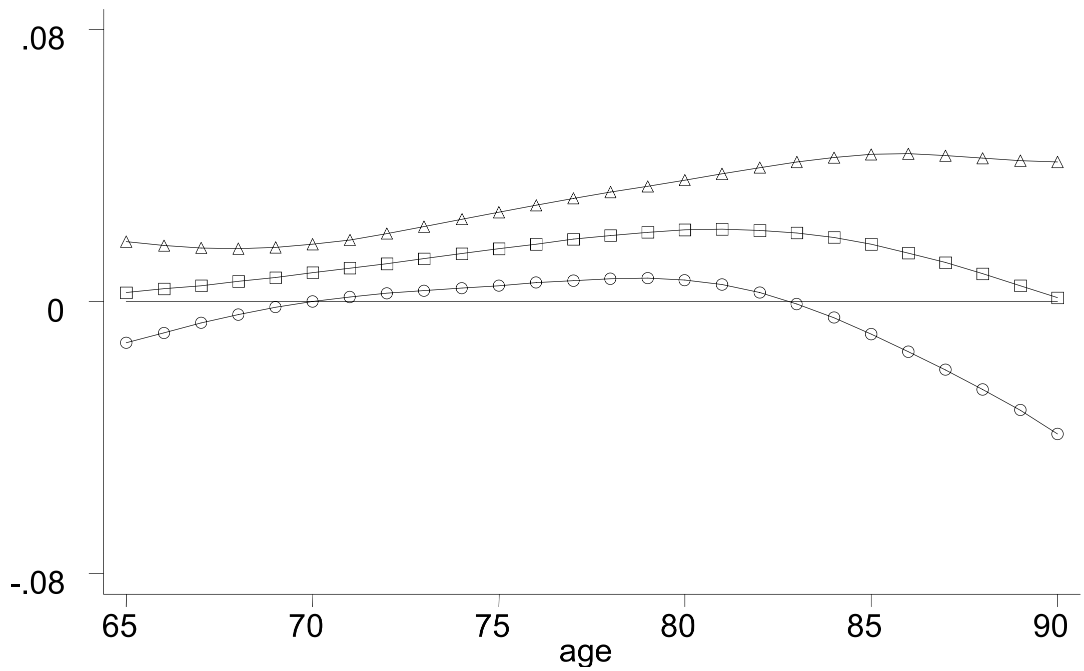

Figure 7: Age-Cohort Estimates of the Proportion of Non-Disabled.

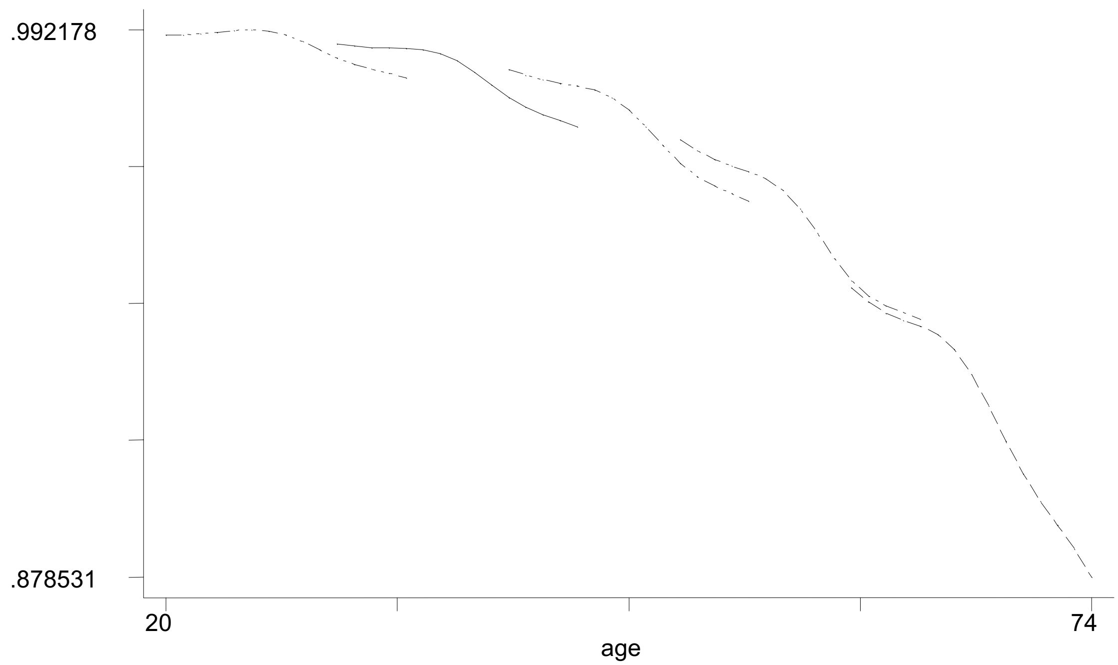

Figure 8: Change in the prevalence of asthma, 1984-1996.

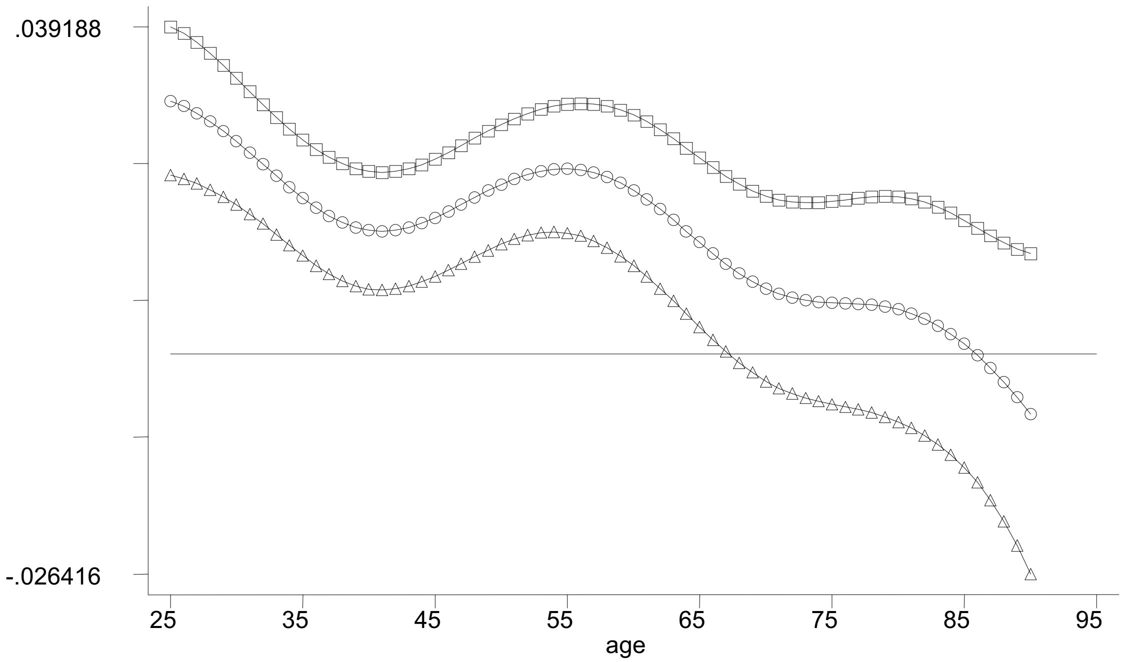

Table 1: Nondisabled Population Among the Non-Institutional Young, 1975-1996.

Year				AGE				
	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
1975	0.930	0.917	0.906	0.885	0.860	0.834	0.786	0.732
1976	0.928	0.922	0.906	0.891	0.858	0.827	0.778	0.732
1978	0.935	0.927	0.902	0.889	0.874	0.831	0.794	0.741
1979	0.938	0.923	0.899	0.884	0.865	0.821	0.801	0.732
1980	0.940	0.927	0.906	0.880	0.868	0.832	0.800	0.740
1982	0.940	0.927	0.915	0.887	0.885	.	.	.
1984	0.992	0.990	0.990	0.986	0.981	0.977	0.964	0.956
1986	0.993	0.994	0.988	0.987	0.984	0.977	0.964	0.951
1988	0.992	0.991	0.987	0.987	0.983	0.976	0.971	0.958
1990	0.993	0.989	0.988	0.985	0.981	0.974	0.968	0.957
1992	0.991	0.988	0.983	0.979	0.976	0.970	0.958	0.944
1994	0.992	0.988	0.985	0.980	0.977	0.972	0.960	0.947
1996	0.990	0.989	0.984	0.979	0.972	0.969	0.964	0.951

Table 2: Nondisabled Population among the Non-Institutional Elderly, 1975-1996.

Year			Age				
	60-64	65-69	70-74	75-79	80-84	85-89	90-94
1975	0.677	0.601	0.561	0.487	0.433	0.361	0.306
1976	0.671	0.609	0.565	0.512	0.458	0.384	0.320
1978	0.675	0.608	0.575	0.511	0.447	0.432	0.356
1980	0.669	0.605	0.554	0.509	0.479	0.330	0.242
1982	.	.	.	.	.	.	.
1984	0.930	0.914	0.868	0.820	0.713	0.576	0.406
1986	0.929	0.914	0.899	0.823	0.721	0.661	0.474
1988	0.937	0.924	0.871	0.813	0.760	0.633	0.513
1990	0.945	0.923	0.889	0.834	0.740	0.639	0.422
1992	0.930	0.927	0.882	0.810	0.724	0.613	0.513
1994	0.931	0.923	0.889	0.830	0.746	0.615	0.466
1996	0.931	0.924	0.886	0.839	0.754	0.620	0.428