

Disability Insurance and Health Insurance Reform: Evidence from Massachusetts[†]

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The unfolding reforms to the US health care system under the Affordable Care Act (ACA) will fundamentally alter the costs and benefits of applying for federal disability benefits through the Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI) programs. SSDI recipients are entitled to health insurance coverage through the Medicare program, but only after they satisfy a two-year waiting period that begins with the date they qualify for benefits.¹ SSI recipients are entitled to Medicaid coverage immediately upon qualifying for benefits.

Because most nonelderly adults in the United States obtain health insurance coverage through their employer, individuals who experience a work-limiting health condition face a difficult dilemma: attempt to keep working in spite of an uncomfortable impairment in order to maintain employer-sponsored health insurance (ESHI) or stop working in order to apply for SSDI or SSI and risk an extended period of uninsurance.

Some of these individuals may be able to obtain subsidized coverage through a spouse's employer. Others may be able to retain their employer coverage temporarily under COBRA provisions, but at full cost during a period without labor earnings.² If the disincentive arising from loss of health insurance coverage presently discourages labor force withdrawal and disability benefit application, then the ACA's introduction of affordable health insurance coverage outside of employment could free workers from "employment lock" and consequently *increase* both disability-related labor force withdrawal and disability applications. On the other hand, the introduction of affordable coverage options outside of SSDI and SSI could reduce the relative value of disability benefits for those who did not have ESHI or were uninsured at the time of disability onset, and, hence, could *decrease* federal disability applications. Indeed, health insurance benefits are more valuable than cash benefits for many beneficiaries (Mashaw 1997). Which of these two countervailing effects is likely to dominate the other is an important empirical question.

The 2006 implementation of health insurance reform in the state of Massachusetts (MA) offers a unique opportunity to forecast the impact of the ACA on SSDI and SSI applications. The Massachusetts reform shares many key features with the ACA—most notably, a new individual coverage mandate, an expansion of subsidized coverage for low-income individuals, the creation of a state health insurance exchange as a source of lower-cost individual coverage, and new requirements for employers. The Massachusetts reform legislation was passed in April 2006 and phased in primarily

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¹The 24-month Medicare waiting period begins after the five-month waiting period for entitlement to cash benefits.

²COBRA provisions allow for an extended time limit (from 18 months to 29 months) in the event the former employee receives a disability determination from SSA within the first 60 days of continuation coverage.

between October 2006 and July 2007. The reform was associated with an increase in the rate of insurance coverage among the nonelderly in Massachusetts from 88 percent in 2004–2006 to 94 percent in 2008–2009, an increase of nearly 7 percent or, alternatively, a decrease in the uninsurance rate of 48 percent (Kolstad and Kowalski 2012). The ACA is expected to increase insurance coverage by a similar magnitude (Truffer et al. 2010).

In this paper we use administrative data from the Social Security Administration (SSA) to examine changes in SSDI and SSI application rates in Massachusetts before and after the reform relative to a group of comparison states that are similar in size, demographics, and geographic location. We find disability applications increased modestly, by 1–3 percent, in Massachusetts relative to neighboring states in the first year following the completion of the reform, with no statistically significant difference thereafter. However, this (temporary) increase masks substantial heterogeneity at the county level: the total number of disability applications (SSDI and SSI combined) increased in counties with relatively high rates of health insurance coverage prior to the reform (consistent with the release of employment lock) and decreased in counties with low rates (consistent with a decrease in the relative value of SSI). Surprisingly, applications for SSDI only (i.e., excluding “concurrent” applications for both SSDI and SSI) increased everywhere, even in counties with low coverage rates, where employment lock would have been relatively low. We argue this pattern is suggestive of state-level incentives to shift Medicaid costs to the federal Medicare program whenever possible. Because health insurance coverage in the rest of the United States is generally lower than in Massachusetts prior to the 2006 reform, our results imply that the ACA may lead to a net decrease in disability applications in the United States, with some shift, at least initially, in the composition of new applications to SSDI.

I. The Health Insurance Landscape in Massachusetts before and after the Reform

Prior to the enactment of its health insurance reform law in 2006, Massachusetts had a generous system of public health insurance and low uninsurance rate compared to other

states. In addition to the mandatory Medicaid programs that all states were required to offer, Massachusetts offered most of the optional Medicaid programs and under a Medicaid demonstration waiver used relatively generous income and asset thresholds for determining eligibility.³ Massachusetts residents who were long-term unemployed or who were certified disabled could enroll in fully subsidized Medicaid coverage if their incomes were below 133 percent of the Federal Poverty Guidelines (FPG).⁴ In theory, the long-term unemployed program (MassHealth Essential) was an option for people whose disabilities did not meet SSA’s strict severity standard, but who had been unable to work for at least a year. However, enrollment in the two programs was capped, and there was a long waiting list (itself equal to 29 percent of the cap) at the time the reform was implemented (Blue Cross MA Foundation 2006). Massachusetts residents who were “working disabled” (those with certified disabilities who were working at least 40 hours per month) and had incomes *above* 133 percent FPG could pay an income-adjusted premium for Medicaid coverage through the state’s Medicaid Buy-In program (CommonHealth Working).⁵ On the eve of reform in 2006, the Massachusetts Medicaid Buy-In program was the largest such program in the country, but even at that time the program enrolled only about 5 percent of the working-age disabled (60 percent of whom were already SSDI/SSI beneficiaries) (Gimm et al. 2008). Thus, even under this relatively generous public coverage landscape, people whose disabilities did not meet SSA’s disability standard lacked an option for affordable coverage—whether working (because the Medicaid Buy-In program also used the SSA disability standard) or not working

³ See Bruen, Wiener, and Thomas (2003) for a description of state mandatory and optional Medicaid programs for disabled beneficiaries prior to the Massachusetts health reform.

⁴ Massachusetts uses the SSA standard for defining disability. To be considered disabled for the purpose of qualifying for the state Medicaid program (MassHealth), individuals must provide evidence of a disability determination from SSA or the state Disability Determination Unit, or a certification of legal blindness from the Massachusetts Commission for the Blind.

⁵ The program was generous compared to other state Medicaid Buy-In programs in that it had no upper limit on income or assets.

(because the long-term unemployed program was closed and there were no other subsidized options).

It was in this context that the Massachusetts legislature passed health insurance reform in April 2006. The reform was implemented in several steps. The first step was the raising of the enrollment cap on the long-term unemployed program (available to those with incomes below 100 percent of FPG) in October 2006. Subsidized insurance plans for lower-income individuals (up to 300 percent of FPG) were made available through Commonwealth Care in January 2007. In May 2007 open enrollment began for Commonwealth Choice, which enabled individuals who were not eligible for Commonwealth Care to purchase insurance offered by private health plans through a newly created health insurance exchange, called the Health Connector. An individual mandate—which required most Massachusetts adults to carry health insurance—and an employer mandate—which required employers with more than ten full-time equivalent employees to offer health insurance or face a penalty—went into effect in July 2007. By the end of 2007, Massachusetts adults were required to show on their state taxes that they were enrolled in a health insurance plan, with tax penalties for noncompliance increasing in 2008. By January 1, 2009 the reform was fully phased in.

For people whose disability clearly met SSA's disability standard, the reform maintained Medicaid coverage with subsidies that varied by income level. However, for those whose disabilities did *not* clearly meet SSA's disability standard (i.e., those who were "moderately disabled"), it created new subsidized insurance options. It raised the enrollment cap on the long-term unemployed program by 36 percent (more than enough to absorb the waiting list) and created fully subsidized private insurance options (independent of employment or disability status) for people with incomes below 150 percent FPG and partially subsidized private insurance options for people between 150 and 300 percent FPG—all available through the state insurance exchange. In addition, (unsubsidized) private plans became available at more affordable prices through the exchange.

By creating a path to subsidized coverage that did not require employment or a disability determination, working individuals could leave their

jobs, apply for SSDI, and obtain health insurance on the exchange while waiting for their cases to be processed or to fulfill the two-year Medicare waiting period. This easing of "employment lock" could have caused an increase in SSDI applications from people with incomes between 150 and 300 percent FPG (who gained access to subsidized coverage) and also from people with incomes above 300 percent FPG (who gained access to more affordable private coverage through the exchange). At the same time, by creating new options for health insurance, the Massachusetts reform decreased the relative value of SSDI and SSI and may have discouraged applications from people without access to affordable health insurance coverage prior to the reform, including the long-term unemployed and workers without ESHI.

II. Data and Empirical Strategy

Our primary data source is the Social Security Administration's 831 files which contain the universe of all SSDI and SSI applications that received a medical determination. These data contain the application filing date, whether the applicant filed for SSDI or SSI benefits or for both concurrently, and other application characteristics. Importantly, it includes the applicant's zip code, which enables us to identify county of residence for the vast majority of applicants. We match zip codes to counties probabilistically using the Census Bureau's definitions of zip code tabulation areas (ZCTAs) and a geographic correspondence engine.⁶ Although most ZCTA codes in our sample correspond to only one county, in cases where the ZCTA corresponds to more than one county we allocate partial applications to the corresponding counties using 2010 census population weights.⁷ We aggregate applications by county and quarter of filing. Our main dependent variable is number of initial applications filed in a quarter per 1,000 working age (ages 20–59) residents, where the denominator is taken from census population estimates. We

⁶ <http://mcdec.missouri.edu/websas/geocorr12.html>.

⁷ A very small portion of ZCTAs are not matched to any county by the correspondence engine (2 percent of applications in our data). These are approximately divided equally into unusable codes ("00000" or "99999") and potentially usable codes for which our correspondence engine may be out of date.

drop counties with fewer than five applications filed in any quarter during the sample period.

We restrict our sample to applications filed by disabled workers ages 18–64 between October 2004 and September 2009 in Massachusetts and the other states in the Northeast census division.^{8,9} These states were chosen because they are geographically close to Massachusetts and also similar in terms of observable characteristics such as population size, income, race, education, and, importantly, unemployment rates and disability application rates (approximately 2.6 applications filed per 1,000 working age residents, per quarter), which were falling in Massachusetts and the Northeast prior to the reform (see Table A-1 in the online Appendix).

We estimate the effect of the Massachusetts reform on SSDI and SSI applications and other outcomes using a difference-in-differences research design where we examine changes in application rates in Massachusetts after the reform relative to changes in the comparison states. This approach allows us to control for any structural shifts in the postperiod assuming they are the same in the treatment (MA) and comparison states. Our main specification is

$$(1) \ y_{ct} = \sum_{j=1}^3 [\beta_j (MA_c \times Post_t \times Y_j) + \gamma_j Post_t \times Y_j] \\ + \delta UE_{ct} + \alpha_t + \mu_c + \varepsilon_{ct},$$

where y_{ct} measures an outcome of interest (e.g., the rate of disability applications per 1,000 working-age residents) in county (or state) c in quarter t , MA_c is an indicator for whether the county is in Massachusetts, $Post_t$ is an indicator for whether quarter t occurs in the postreform

period (beginning in 2006:IV) and Y_j is an indicator for the year of the postreform period. The specification includes controls for the local unemployment rate (UE_{ct}), indicators for quarter-year (α_t) to flexibly control for common factors such as macroeconomic conditions that influence disability applications and awards in each quarter. Similarly, μ_c is a county effect that controls for fixed, county-specific components of application flows. We cluster standard errors at the state level. The coefficients of interest are the β_j , which measure the change in applications in year j after the reform for Massachusetts relative to the other states.

We examine heterogeneity in the impact of the Massachusetts reform in two ways. First, we examine changes in SSDI and SSI applications separately. The types of individuals eligible to apply for SSDI and SSI differ in important ways. To apply for SSDI, individuals must have accumulated sufficient and recent work history. To apply for SSI individuals must have very low income and assets. Those eligible to apply for both programs concurrently must have sufficient recent work history *and* very low income and assets; thus, “concurrent” applicants are likely to consist of the long-term unemployed. Additionally, SSDI and SSI offer different types of insurance coverage (Medicare versus Medicaid) at different times (after a two-year waiting period versus immediately upon benefit entitlement). These features alter the balance of costs and benefits associated with disability application, and so it is reasonable to expect that the Massachusetts reform might affect the different programs in different ways. We might expect nonconcurrent applications for SSDI to increase as the reform eases employment lock among the employed and applications for SSI to decrease as the reform reduces the relative value of SSI to nonworkers.

Second, we examine heterogeneity at the county level, by estimating the effect of the reform separately for counties with low versus high rates of prereform (2005) insurance coverage, defined as below and above 88 percent (which divides the working-age population approximately in half). Since increased access to Medicaid may have discouraged SSI applications from the previously uninsured, we expect any decreases in SSI applications to be concentrated in counties with low prereform coverage rates. Similarly, easing of employment lock may

⁸ Starting in 2009, the incidence of missing zip codes increases dramatically in Massachusetts as well as Connecticut, Rhode Island, and Vermont. This was due to a glitch in the software program that managed the electronic records that affected 30 states/territories. Rhode Island is excluded from the county-level analysis because of a large number of missing zip codes prior to 2009.

⁹ Maine and Vermont also implemented health reforms in 2003 and 2006, respectively. All three reforms created new coverage options and expanded public coverage, although only Massachusetts implemented a mandate. See Kaye and Snyder (2007) for more details. The results are robust to exclusion of Maine and Vermont in the control group.

TABLE 1—EFFECT OF MASSACHUSETTS HEALTH INSURANCE REFORM ON RATE OF DISABILITY APPLICATIONS

	All applications	SSDI only	SSI total	SSDI total
<i>Panel A. States</i>				
MA × FY2007	0.0407* (0.0198)	0.0295* (0.0134)	0.0113 (0.0254)	0.0295 (0.0247)
MA × FY2008	0.0800*** (0.0152)	0.0647*** (0.0170)	0.0153 (0.0189)	0.0703** (0.0264)
MA × FY2009	0.0148 (0.0560)	0.0405 (0.0325)	−0.0257 (0.0374)	0.0234 (0.0272)
<i>Panel B. Counties</i>				
MA × FY 2007	−0.0072 (0.0121)	0.0035 (0.0068)	−0.0107 (0.0133)	−0.0050 (0.0184)
MA × FY 2008	0.0340* (0.0161)	0.0469*** (0.0085)	−0.0129 (0.0164)	0.0483 (0.0285)
<i>Panel C. Low-insurance counties</i>				
MA × FY 2007	−0.0617*** (0.0048)	0.0048 (0.0111)	−0.0665*** (0.0121)	−0.0470*** (0.0084)
MA × FY 2008	−0.0610*** (0.0090)	0.0448*** (0.0108)	−0.1060*** (0.0073)	−0.0266** (0.0080)
<i>Panel D. High-insurance counties</i>				
MA × FY 2007	0.0405 (0.0361)	0.0078 (0.0082)	0.0327 (0.0300)	0.0372 (0.0351)
MA × FY 2008	0.133** (0.0393)	0.0540*** (0.0134)	0.0794* (0.0396)	0.1370* (0.0458)

Notes: All regressions weighted by working-age population and include geography and calendar-quarter fixed effects. Robust standard errors in parentheses clustered at state level. Mean application rates per 1,000 working-age residents per quarter in MA prior to reform: 2.6 all applications, 0.86 SSDI only, 1.74 SSI total, 2.03 SSDI total. Low-insurance counties defined by 2005 health insurance coverage rate < 88 percent. All applications includes SSDI only, plus SSI total (SSI only and concurrent applications).

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

encourage SSDI applications from individuals previously covered by ESHI, so we expect increases in SSDI applications to come from counties with high prereform coverage rates.

III. Results and Discussion

Prior to health insurance reform in Massachusetts and during the economic expansion, application rates for SSDI and SSI had been declining in the Northeastern states, including Massachusetts (see panel A of online Appendix Table A-1). However, after the reform was implemented in fiscal year (FY) 2007, Massachusetts experienced a modest increase in applications that was not experienced in the comparison states. By FY 2009, sharp increases in the unemployment rate (panel E) led to

sizeable increases in disability applications in all the states in the Northeast.

Panel A of Table 1 shows estimated changes in applications for fiscal years 2007, 2008, and 2009 while controlling for common shocks and differences in unemployment rates using state-level data in the difference-in-differences framework. We find little effect of the Massachusetts reform in FY 2007, consistent with the fact that the reform had not yet been fully implemented. In FY 2008, we estimate that disability applications in Massachusetts increased by 0.08 per 1,000 working age residents, or 3 percent, compared to neighboring states. This effect disappears in FY 2009. This suggests that health insurance reform may have led to a temporary increase in applications, possibly due to “pent-up demand” for disability benefits among

those who had been working. It is also possible that the dramatic increase in unemployment in *all* states around that time may have dampened the differential effects of the reform on disability applications. The increase in applications is driven primarily by increases in applications for SSDI only, excluding concurrent applications. Panel B of Table 1 reproduces the state-level estimates using county-level data through FY 2008. (Due to data limitations described in footnote 8 we cannot conduct county-level analyses past FY 2008.)

Our county-level analysis allows us to decompose the total effect in Massachusetts into effects in counties with low and high health insurance rates before the reform. While the estimates for the high-insurance counties mirror the overall estimates, the low-insurance counties actually experienced a net *decrease* in disability applications relative to neighboring counties in FY 2008. This finding is consistent with our expectation that the Medicaid expansion would reduce the relative value of SSI, particularly in areas of low prereform coverage. The effect is also present in FY 2007, perhaps due to the fact that the Medicaid expansions occurred earliest in the implementation period. This net decrease in applications occurred despite the fact that, surprisingly, SSDI-only applications increased even in the low-insurance counties where there was relatively less ESHI before the reform (and, hence, less employment lock).

One potential explanation for this surprising pattern is that state incentives may offset individual incentives. For example, one way for states to reduce the financial burden of expanded public health insurance coverage is to encourage all qualifying individuals to apply for federal programs. If this is the case, then we might expect to see an increase in applications from those who had been disabled for a long period of time.¹⁰ On the other hand, if release of employment lock was the source of the new applications, then we would expect a *decrease*

¹⁰ Individuals with congenital conditions or the long-term unemployed would have relatively long delays, compared to newly unemployed individuals, due to SSA's definition of onset as the intersection of poor health and earnings falling below the threshold for substantial gainful activity (\$1,010 per month in 2010). We observe onset only for individuals who were allowed into the program at the initial level (approximately one-third of applications).

TABLE 2—EFFECT OF MA HEALTH INSURANCE REFORM ON TIME TO FILING

	SSDI only	SSI total
<i>Panel A. Low-insurance counties</i>		
MA × FY 2007	1.099*** (0.267)	5.378*** (0.366)
MA × FY 2008	0.511*** (0.134)	9.199*** (0.695)
<i>Panel B. High-insurance counties</i>		
MA × FY 2007	−1.438*** (0.318)	3.733*** (0.254)
MA × FY 2008	−2.098** (0.586)	6.697*** (0.487)

Notes: All regressions weighted by working-age population and include county and calendar-quarter fixed effects. Robust standard errors in parentheses clustered at state level. Mean time in months from SSA-defined onset to filing conditional on initial allowance in MA prior to reform: 14.1 SSDI only, 2.6 concurrent, 1.4 SSI only. Low-insurance counties defined by 2005 health insurance coverage rate < 88 percent.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

in applications from those who had been disabled a long time before filing. In Table 2, we estimate the impact of the reform on the average time between onset of impairments (as defined by SSA) and filing for benefits in low- and high-insurance counties. SSDI-only applicants in low-insurance counties filed on average 0.5–1 month *later* after the reform versus before the reform, while SSDI-only applicants in high-insurance counties filed on average 1–2 months *earlier* after versus before the reform. This is consistent with state incentives dominating in counties where the Medicaid expansion was more costly (low-insurance counties) and individual incentives dominating where it was less costly (high-insurance counties).

Finally, viewing the Massachusetts reform as a test case for the ACA, because health insurance coverage is lower in most US states (84 percent in 2010) than it was in Massachusetts prior to its reform, our estimates point to a likely decrease in the overall SSDI and SSI caseload relative to current trends, with some shift, at least initially, in the composition of new applications toward SSDI compared with SSI. Our results highlight the potential for the ACA to affect disability

applications as a result of not only individual incentives but also *state* incentives to shift public health insurance costs to federal programs when possible.

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