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RESEARCH ARTICLE

# Expanding Coverage to Low-Income Childless Adults in Massachusetts: Implications for National Health Reform

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**Objective.** To draw on the experiences under Massachusetts's 2006 reform, the template for the Affordable Care Act (ACA), to provide insights into the potential impacts of the ACA Medicaid expansion for low-income childless adults in other states.

**Data Sources/Study Setting.** The study takes advantage of the natural experiment in Massachusetts and combined data from two surveys—the Massachusetts Health Reform Survey (MHRS) and the National Health Interview Survey (NHIS)—to estimate the impacts of reform on low-income adults.

**Study Design.** Difference-in-differences models of the impacts of health reform, using propensity-score reweighting to improve the match between Massachusetts and the comparison states.

**Data Collection/Extraction Methods.** Data for low-income adults are obtained by combining data from the MHRS and the NHIS, where the MHRS provides a relatively large Massachusetts sample and the NHIS provides data for samples in other states to support the difference-in-differences model. Supplemental data on county economic and health care market characteristics are obtained from the Area Health Resource File.

**Principal Findings.** There are strong increases in coverage and access to health care for low-income adults under health reform in Massachusetts, with the greatest gains observed for childless adults, who were not eligible for public coverage prior to reform.

**Conclusions.** In the states that implement the Medicaid provisions of the ACA, we would expect to see large increases in coverage rates and commensurate gains in access to care for low-income childless adults. Linking state and federal surveys offers a strategy for leveraging the value of state-specific survey data for stronger policy evaluations.

**Key Words.** Health reform, insurance coverage, access to care

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In April 2006, Massachusetts enacted an ambitious health care reform bill that resulted in significant gains in insurance coverage, access to and use of care, and the affordability of care for the Massachusetts population as a whole and, especially, for lower income adults (e.g., Clark et al. 2011; Long 2008; Long

and Stockley 2010; Tinsley et al. 2010; Zhu et al. 2010). Given the success of health reform in Massachusetts, many of the key features of the Bay State's initiative were incorporated in national health reform under the 2010 Patient Protection and Affordable Care Act (ACA), including expansions of public coverage, subsidies for private coverage, a health insurance exchange, insurance market reforms, requirements for employers, and an individual mandate. While there are differences in the details of Massachusetts law and the ACA, the core structure is quite similar (Levy 2012/2013). Thus, the experiences in Massachusetts provide an estimate of the potential gains under the ACA, including the expansion of Medicaid eligibility. Consistent with the link between Massachusetts reforms and the ACA design, estimates of the impacts of the Massachusetts reforms on insurance of coverage have been used to inform the assumptions on individual behavior that underlie many of the microsimulation models used to estimate the potential gains under the ACA at the national and state levels (e.g., models by the Congressional Budget Office, the Urban Institute, and Jonathan Gruber).<sup>1</sup>

Under the ACA, states have the option of expanding Medicaid eligibility to nearly all adults with family income up to 138 percent of the federal poverty level (FPL)<sup>2</sup> in 2014.<sup>3</sup> As of January 2014, 25 states and the District of Columbia had committed to the ACA Medicaid expansion (Kaiser Family Foundation 2014). This opportunity for state Medicaid expansions represents a significant change to national Medicaid policy, particularly for childless adults—that is, adults without dependent children who are not aged, disabled, or pregnant. Prior to the ACA, low-income childless adults, unlike other low-income adults, were only eligible for Medicaid coverage as a state option, and only a handful of states made Medicaid or Medicaid-like coverage available to low-income childless adults. Massachusetts is one of those states, having added fully subsidized coverage for low-income childless adults under the Commonwealth Care program, a Medicaid-like program, as part of its 2006 reform initiative. Key differences between Commonwealth Care and MassHealth, the Medicaid program in Massachusetts, include a more limited set of benefits, co-payments for some services, and, for those with incomes above 150 percent of the FPL, premiums.

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Under the 2006 reform, Massachusetts provided fully subsidized coverage under the Commonwealth Care program to adults up to 100 percent of the FPL as of October 2006, with the full subsidy expanded to include adults up to 150 percent of the FPL as of 2007. Partially subsidized coverage was provided to adults between 150 percent and 300 percent of the FPL as of July 2007. Prior to that, parents were eligible for Medicaid coverage up to 133 percent of the FPL, while childless adults were not eligible for Medicaid coverage unless they were aged, disabled, or pregnant. Consequently, we would expect the effects of the expansion of public coverage to low-income adults in Massachusetts to have a stronger impact on childless adults than parents. We would also expect a stronger effect for the lower income adults who were eligible for fully subsidized coverage.

Estimating the impacts of Massachusetts health reform initiative on the childless adults in the ACA's Medicaid target population is challenging: Sample sizes for states in national surveys tend to be relatively small—for example, less than 3,000 in the Current Population Survey, less than 2,000 in the NHIS, and less than 500 in the Medical Expenditure Panel Survey (State Health Access Data Assistance Center 2011), making it difficult to focus on narrow population groups, while state-specific surveys, which may offer a larger state sample size, cannot support the stronger designs needed to disentangle the effects of health reform from other factors.

In an attempt to address both of these limitations, this article combines data from two surveys—the Massachusetts Health Reform Survey (MHRS) and the National Health Interview Survey (NHIS)—to examine the impacts of the Massachusetts reforms for the low-income childless adults and parents who are targeted by the ACA Medicaid expansion. The MHRS provides a relatively large sample of low-income adults in Massachusetts, while the NHIS provides data for low-income adults in other states to support a stronger difference-in-differences evaluation design (Wooldridge 2002) than is possible with data on a single state. Although we are not aware of other efforts to combine state-specific surveys with the NHIS, the NHIS has been combined with other national surveys to expand the analyses that are possible (e.g., Schenker et al. 2002; Bostean 2013). Combining data from state-specific surveys like the MHRS with the NHIS is a promising strategy for state health reform evaluation efforts for those states that regularly conduct population surveys on health insurance coverage and health care access and use.<sup>4</sup>

Findings here for Massachusetts provide insights into the potential effects of the Medicaid expansion and other ACA changes for the key target population of low-income childless adults in other states, including the

potential effects in states that have not expanded Medicaid under the ACA. These estimates, which are based on the ACA target population rather than the Massachusetts target population used in prior work, more closely reflect the potential impacts of the ACA for other states based on the Massachusetts experience. To the extent that microsimulation models currently rely on findings from Massachusetts for higher income groups in constructing assumptions on individual behaviors under the ACA, these estimates offer the possibility of more refined estimates that more closely target the Medicaid expansion population under the ACA.

## DATA AND METHODS

### *Data*

As noted above, the study combines data from the 2006–2010 Massachusetts Health Reform Survey and the 2004–2010 National Health Interview Survey, with supplemental data on county economic and health care market characteristics obtained from the 2004–2011 Area Health Resource File (AHRF). The MHRS provides data for adults in Massachusetts prior to and following the implementation of the state's 2006 health reform initiative. The NHIS provides data for adults in Massachusetts and for the nation as a whole, with the latter providing the counterfactual for what would have happened in Massachusetts over this period in the absence of health reform. We combine the MHRS data with the NHIS for data on Massachusetts because of the small sample size for Massachusetts in the NHIS for this period.<sup>5</sup> We focus on low-income nonelderly adults aged 19–64 years in both surveys.

*MHRS.* The MHRS was conducted in fall 2006, just prior to the implementation of many of the key elements of reform in Massachusetts,<sup>6</sup> and each fall thereafter from 2007 to 2010.<sup>7</sup> Additional follow-up surveys were fielded in fall 2012 and 2013. For this study, we rely on the MHRS baseline data from fall 2006 and follow-up data from fall 2007 to fall 2010. The MHRS, which is described in more detail in Long, Stockley, and Dahlen (2012), collected information on insurance status and, for those with coverage, characteristics of their health plan, along with measures of access to and use of care and health care costs and affordability, among other measures for civilian, noninstitutionalized, nonelderly adults in the state. The sample size was roughly 3,000 adults

each year in the MHRS, for a total sample of 16,190 adults for the 2006–2010 study period.

*NHIS.* The NHIS provides detailed information on health, health insurance coverage, health care access and use, and health care affordability for a representative sample of the overall civilian, noninstitutionalized population of the United States. Within the NHIS, questions on insurance coverage are asked about all individuals in the household, while detailed access and use questions are only asked of one randomly selected adult within each household (called the “sample adult”). To focus on a consistent sample across outcomes, we limit all of the analyses from the NHIS to the sample adult. The NHIS sample adult sample size for the 2004–2010 study period is 220,116 adults overall, with 4,380 in Massachusetts.

We draw our NHIS sample from the Integrated Health Interview Survey (IHIS) (Minnesota Population Center and State Health Access Data Assistance Center 2011), which provides a harmonized version of the NHIS that facilitates comparisons over time, with confidential data merged to that file by the National Center for Health Statistics (NCHS). Included in the confidential NHIS data file are geographic measures (state and county identifiers) and detailed continuous imputed income variables. The state and county identifiers are needed to merge external data (the AHRF and the MHRS), and after the NCHS analyst completed the merge, the county indicators are dropped from the final analytic data. The detailed income variables are needed to construct eligibility groups based on FPL and remain in the final data file, which is accessible only in the University of Minnesota’s Census Research Data Center.

*Defining Low-Income Adults.* Since the MHRS obtained family income relative to the FPL based on a limited number of categories in each year (e.g., below 100 percent of the FPL, 200 percent of the FPL, etc.), we are not able to identify adults in the MHRS with family income at or below 138 percent of the FPL, which is the eligibility standard for the Medicaid expansion under the ACA.<sup>8</sup> Instead, we define low-income as family income below 100 percent of the FPL in the MHRS<sup>9</sup> and as at or below 138 percent of the FPL in the NHIS.<sup>10</sup> We test the sensitivity of our estimates to the income definition by also estimating models based on the lower income cut-off (below 100 percent of the FPL) in both surveys.

*Defining the Study Period.* To have adequate sample size over the prereform period for the three comparison groups for the difference-in-differences models (discussed below), we define the prereform period in the NHIS as 2004 to 2006. Although sample sizes for each of the years are small for some of the comparison groups, estimates of the outcomes for the comparison groups were similar across the years in the prereform period. The prereform period is 2006 in the MHRS. In both surveys, 2007 is treated as an implementation year and 2008–2010 is the postreform period.

*Combining the MHRS and NHIS.* In combining the two surveys for the analysis, we add the MHRS Massachusetts sample to the Massachusetts sample in the NHIS, rescaling the weights so that the sum of the weights for the combined Massachusetts sample equals the sum of the weights for the Massachusetts sample in the NHIS in each year. We combine the MHRS and NHIS samples for Massachusetts in proportion to the share of the total Massachusetts sample from each survey in each year (Roberts and Binder 2009).

While combining the two surveys expands the Massachusetts sample size available to support the analysis, it also raises comparability issues as the surveys differ on many dimensions (Roberts and Binder 2009), including sponsorship, survey design and fielding, survey content, and question wording, among many others. We address some of these differences by limiting the analysis to outcome measures and explanatory variables that are defined consistently across the surveys, although question wording does vary somewhat. Beyond that, we know that there are differences in the income measures and the survey years that will introduce measurement error in our estimates, as well differences in our ability to define family in the two surveys (based on immediate family in the MHRS versus all related persons in the household in the NHIS).

### *Methods*

The analysis takes advantage of the “natural experiment” that occurred in Massachusetts to examine changes in insurance coverage and key measures of health care access and use following the state’s 2006 health reform. To attempt to disentangle the impacts of Massachusetts’s health reform initiative from other changes over time (such as the recession that began in 2007), we compare changes over time for low-income adults in Massachusetts to changes over time for similar adults in other states using a difference-in-differences

framework. Subtracting changes in the outcomes for comparison groups of adults over the same time period allows us to isolate the effects of the Massachusetts coverage initiatives from underlying trends not related to the reforms. The assumption underlying this analytic approach is that the trends over time for the comparison groups provide the counterfactual for what would have happened in the absence of Massachusetts health reform. We estimate models for the impacts of health reform on all low-income adults, as well as models that allow for differences in the impacts on parents and childless adults. As noted above, we would expect the impacts to be larger for childless adults given that they were not eligible for public coverage prior to reform.

*Defining the Comparison Groups.* In this framework, the comparison groups provide the estimates of what would have happened in the study states in the absence of health reform, capturing, for example, the effects of economic, political, regulatory, or social changes occurring over the same time period. Because there is no perfect comparison state or group of states for Massachusetts, we use multiple comparison groups, assessing the sensitivity of our findings across the models. The comparison groups we used are based on other states that were not making changes to their Medicaid programs for adults over the study period. We estimate models using three comparison groups: (1) low-income adults in New York,<sup>11</sup> (2) low-income adults in other states in the Northeast, and (3) low-income adults in all other states in the United States. New York provides a comparison state with a similar economic base and safety net system as that of Massachusetts, including a similar history of incremental expansions of eligibility for public coverage. Other states in the Northeast, while not as similar to Massachusetts as New York, are part of the same regional economic system as Massachusetts. All other states in the United States differ more systematically from Massachusetts on baseline measures and, thus, provide a weaker counterfactual.

We use propensity score weights to insure that the samples from the comparison states match the samples in Massachusetts on observable characteristics (Rubin 1997). We estimate separate propensity score models for each of the comparison groups used (i.e., New York, other states in the Northeast, and other states in the rest of the nation).

Table 1 compares the characteristics of the Massachusetts sample with the characteristics of the adults in the three comparison groups in terms of age, gender, race/ethnicity, citizenship, marital status, parent status, education, and employment, along with the unemployment rate and provider supply in

Table 1: Summary of Characteristics of Low-Income Adults in Massachusetts and in the Three Comparison Groups in the Prereform Period

Characteristics	Comparison Groups of Low-Income Adults in Each Geographic Area, without Propensity Score Weighting			Comparison Groups of Low-Income Adults in Each Geographic Area, with Propensity Score Weighting			
	Massachusetts	(1) New York	(2) Other States in the Northeast	(3) Other States in the US	(1) New York	(2) Other States in the Northeast	(3) Other States in the US
Age							
19–25 (%)	31.4	21.3	21.0	25.7	31.2	34.7	41.8
26–34 (%)	15.9	23.3	22.2	21.6	21.6	20.5	10.8
35–49 (%)	30.6	34.8	35.0	30.9	28.2	26.3	24.8
50–64 (%)	22.0	20.7	21.8	21.8	19.0	18.5	22.6
Race/ethnicity							
White, non-Hispanic (%)	60.6	41.3	41.8	51.8	58.8	61.2	76.1
Minority, non-Hispanic (%)	20.3	29.0	27.5	21.8	20.2	18.9	11.6
Hispanic (%)	19.1	29.7	30.7	26.4	21.0	19.9	12.3
Female (%)	56.5	59.3	59.5	55.5	59.6	60.6	64.4
US citizen (%)	85.0	75.2	74.4	80.3	85.2	85.6	91.7
Married (%)	22.5	32.4	33.7	39.3	24.0	22.1	13.8
College graduate (%)	23.5	34.3	34.3	32.4	20.1	19.7	33.7
Parent of a dependent child (%)	39.1	51.9	52.4	53.3	44.0	43.2	23.5
Employed (%)	42.3	49.6	50.7	51.5	39.8	41.2	32.1
Primary care physicians per 1,000 people in county	1.4	1.3	1.2	0.9	1.5	1.4	2.7
Hospital beds per 1,000 people in county	4.1	4.1	3.9	3.6	4.2	4.0	7.1
County unemployment rate (%)	5.2	6.3	6.0	6.0	5.8	5.6	4.4
Sample size	736	1,142	1,660	13,171	1,142	1,660	13,171

Note. Low-income is defined as family income below 100% of the federal poverty level (FPL) for the MHR sample and at or below 138% of FPL for the NHIS sample. The prereform period is 2006 for the MHR sample and 2004–2006 for the NHIS sample.  
Source: 2006–2010 MHR, 2004–2010 NHIS, and 2004–2011 AHRF.



the individual's county of residence. County-level provider supply is measured as number of primary care physicians per 1,000 residents and number of hospital beds per 1,000 residents. As shown in the first set of columns, low-income adults in Massachusetts differ from low-income adults in New York, other Northeastern states, and other states in the United States on many dimensions. Relative to the adults in the comparison groups, the Massachusetts adults were more likely to be under age 26, single, without children, with less than a college education, unemployed, and white, non-Hispanic. Additionally, Massachusetts low-income adults tended to reside in counties with more primary care physicians, more hospital beds, and lower unemployment rates.

After reweighting the comparison group samples using propensity score weighting, the characteristics of the comparison group samples are aligned to match those of the Massachusetts sample much more closely, as shown in the second panel of the Table 1. In presenting the results, we report estimates based on multivariate regression models with and without the propensity score reweighting, but we focus on the models utilizing the propensity scores. The regression models control for the characteristics of the individual, his/her family, and the local economy and health care market, as reported in Table 1.<sup>12</sup> As shown below, study findings are generally consistent across the models with and without the propensity score weights.

*Outcome Measures.* We limit the outcome measures examined to two key measures that can be defined in a consistent manner across the two surveys: insurance coverage, measured as whether the individual had insurance coverage at the time of the survey, and access to health care, measured as whether the individual had a usual source of care at the time of the survey (Table 2).<sup>13</sup> In 2006, prior to the implementation of Massachusetts's health reform initiative, insurance coverage for low-income adults in Massachusetts was at 75.4 percent, which was higher than that in New York (72.7 percent), other Northeastern states (70.3 percent), and, especially, other states in the United States (56.6 percent). After the propensity-score reweighting, the coverage rates were similar to Massachusetts for all three comparison groups: 77.6 percent in New York, 75.4 percent in other Northeastern states, and the 74.8 percent in other states in the United States.

Similar patterns are observed when comparing low-income Massachusetts adults in the prereform period on the usual source of care measure to low-income adults in New York and other Northeastern states, with 79.9 percent of Massachusetts adults reporting that they had a usual source of care, as

Table 2: Summary of Outcome Measures for Low-Income Adults in Massachusetts and in the Three Comparison Groups in the Prereform Period

Outcomes	Massachusetts	Comparison Groups of Low-Income Adults in Each Geographic Area, without Propensity Score Weighting			Comparison Groups of Low-Income Adults in Each Geographic Area, with Propensity Score Weighting		
		(1) New York	(2) Other States in the Northeast	(3) Other States in the US	(1) New York	(2) Other States in the Northeast	(3) Other States in the US
Had insurance coverage at the time of the survey (%)	75.4	72.7	70.3	56.6	77.6	75.4	74.8
Had a usual source of care (other than the emergency department) at the time of the survey (%)	79.9	79.6	79.2	69.1	78.6	76.9	67.9
Sample size	736	1,142	1,660	13,171	1,142	1,660	13,171

*Note.* Low-income is defined as family income below 100% of the federal poverty level (FPL) for the MHRS sample and at or below 138% of FPL for the NHIS sample. The prereform period is 2006 for the MHRS sample and 2004–2006 for the NHIS sample.

*Source:* 2006–2010 MHRS, 2004–2010 NHIS, and 2004–2011 AHRF.

compared to 78.6 percent for adults in New York and 76.9 percent for adults in other Northeastern states after propensity-score reweighting. The share of low-income adults with a usual source of care was somewhat lower in other states in the United States, at 67.9 percent, after propensity-score reweighting, which would suggest that other US states is a weaker comparison group for this outcome.

We estimate logit models, controlling for the complex design of each of the sample surveys using the survey estimation procedure (svy) in Stata 12 (StataCorp 2011). We present estimates of average marginal effects, derived using the margins command in Stata, and test for differences for Massachusetts versus the comparison groups based on those estimates.

### Limitations

As noted above, combining the NHIS and MHRS introduces some limitations. First, there are a number of differences in survey design and fielding and

in variable definition across the two surveys that may introduce error into the estimates. However, the consistency of the regression-adjusted pre-post estimates (which are based largely on the MHRS) with the difference-in-differences estimates (which rely more equally on the MHRS and the NHIS) suggests that those differences are not driving the findings. Second, we are constrained by the available data to define low income as up to 100 percent of the FPL in the MHRS, which represents a subset of the population eligible for the Medicaid expansion under the ACA. We do include adults in Massachusetts with incomes up to 138 percent of the FPL from the NHIS; however, the sample size there is small. Restricting the samples in the MHRS and NHIS to adults with incomes below 100 percent of the FPL yields similar findings. Third, to have sufficient sample size in the comparison groups from the NHIS in the prereform period, we defined the prereform period as 2004–2006 in the NHIS. By contrast, the only prereform year available in the MHRS is 2006. Finally, even with our reliance on the two surveys, the overall sample size for some components of the analysis is still relatively small, especially for low-income childless adults and low-income parents, making our estimates imprecise.

## STUDY FINDINGS

We begin by reporting on the results for all low-income adults, followed by the estimates for low-income parents and low-income childless adults.

### *All Low-Income Adults*

We find significant gains in insurance coverage for low-income adults in Massachusetts under health reform based on simple pre–post estimates (Table 3). Simple (unadjusted) pre–post estimates show an increase in the coverage rate of 15.5 percentage points in Massachusetts, increasing from 74.9 percent in the preperiod to 88.3 percent in 2007—the implementation period, to 90.4 percent in 2008–2010—the postreform period. This estimate is similar to the regression-adjusted pre–post estimate of an 18.4 percentage point increase in coverage, reported in Table 4, and falls within the range of estimates from the difference-in-differences models of 13.3–23.8 percentage points depending on the comparison group (New York, other Northeastern states, or the rest of the United States) and the use of propensity score reweighting. Our preferred models, which rely on propensity-score reweighting, narrow the range of

Table 3: Simple (Unadjusted) Pre-Post Estimates of the Impacts of Health Reform on Low-Income Adults in Massachusetts

<i>Outcomes</i>	<i>Prereform Period<sup>†</sup> (%)</i>	<i>Implementation Period<sup>‡</sup> (%)</i>	<i>Postreform Period<sup>‡</sup> (%)</i>	<i>Unadjusted Pre-Post Impact Estimates</i>
Had insurance coverage at the time of the survey	74.9	88.3	90.4	15.5**
Had a usual source of care (other than the emergency department) at the time of the survey	79.6	83.3	85.1	5.5*

*Note.* Low-income is defined as family income below 100% of the federal poverty level (FPL) for the MHRS sample and at or below 138% of FPL for the NHIS sample.

<sup>†</sup>The prereform period is 2004–2006.

<sup>‡</sup>The postreform period is 2008–2010; 2007 represents a transition period in which key elements of health reform was being implemented.

Significantly different from zero at the \*.05 (\*\*.01) level, two-tailed test.

*Source:* 2006–2010 MHRS, 2004–2010 NHIS, and 2004–2011 AHRF.

estimates to a 17.6–23.8 percentage point gain in coverage under reform. Estimates based on alternate income group of income below 100 percent of the FPL and propensity-score reweighting were similar, ranging from 17.0 to 22.9 percentage point gains.

We also find evidence of improvement in access to care, as measured by having a usual source of care, for low-income adults under reform. Massachusetts's health reform initiative was expected to affect access to care through two paths—by expanding access to health insurance coverage and by creating a new standard for the benefits that needed to be covered under a health plan for it to count as coverage under the individual mandate. Both were expected to lower the costs of health care to individuals and, thereby, increase their access to and use of care. Simple pre–post estimates for Massachusetts show an increase of 5.5 percentage points in the share of low-income adults with a usual source of care under health reform (Table 3). Findings from the difference-in-differences models also show positive gains (ranging from 1.6 to 10.1 percentage points across the different comparison groups and the two income groups), although the estimates based on the preferred models that rely on propensity-score reweighting and, for this outcome, the New York and other Northeastern states as the comparison group, are not generally statistically significant.

Table 4: Regression-Adjusted Estimates of the Impacts of Health Reform on Low-Income Adults in Massachusetts

Outcome/Family Income Group	Regression-Adjusted Pre-Post Impact Estimates	Regression-Adjusted Difference-in-Differences Impact Estimates Based on Comparison Groups of Low-Income Adults in Each Geographic Area					
		Without Propensity Score Weights			With Propensity Score Weights		
		(1) New York	(2) Other States in the Northeast	(3) Other States in the US	(1) New York	(2) Other States in the Northeast	(3) Other States in the US
Had insurance coverage							
Group 1: At or below 138% FPL <sup>†</sup>	18.4**	13.3**	17.1**	17.0**	19.6**	23.8**	17.6**
Group 2: Below 100% FPL	18.4**	15.4**	18.2**	19.1**	17.0**	22.9**	20.2**
Had a usual source of care							
Group 1: At or below 138% FPL <sup>†</sup>	6.8**	6.4	10.1**	8.2**	6.3	9.6	1.6
Group 2: Below 100% FPL	6.5*	6.2	10.2**	8.9**	5.9	14.0*	2.4

<sup>†</sup>For this income group, low-income is defined as family income below 100% of the federal poverty level (FPL) for the MHRS sample and at or below 138% of FPL for the NHIS sample. Significantly different from zero at the \*.05 (\*\*.01) level, two-tailed test. Source: 2006–2010 MHRS, 2004–2010 NHIS, and 2004–2011 AHRF.

*Low-Income Parents and Low-Income Childless Adults*

Given that many low-income parents were eligible for public coverage in Massachusetts prior to the 2006 health reform initiative, we hypothesized that the gains from health reform would be concentrated among low-income childless adults. The findings reported in Table 5 confirm that expectation. Focusing here on the estimates based on our preferred models using propensity-score reweighting, we find strong increases in insurance coverage for childless adults. The estimates of the increase in coverage for low-income childless adults ranged from 21.1 to 29.4 percentage points, with the estimates for low-income childless adults generally significantly greater than those for low-income parents. There was also evidence of significant increases in access to care under reform for low-income childless adults, with no significant changes for low-income parents. As shown, the share of low-income childless adults with a usual source of care was

Table 5: Regression-Adjusted Estimates of the Impacts of Health Reform on Low-Income Parents and Low-Income Childless Adults in Massachusetts Based on Models with Propensity Score Weights

Outcome/Family Income Group	Regression-Adjusted Difference-in-Differences Impact Estimates Based on Comparison Groups of Low-Income Parents in Each Geographic Area			Regression-Adjusted Difference-in-Differences Impact Estimates Based on Comparison Groups of Low-Income Childless Adults in Each Geographic Area		
	(1) New York	(2) Other States in the Northeast	(3) Other States in the US	(1) New York	(2) Other States in the Northeast	(3) Other States in the US
Had insurance coverage						
Group 1: At or below 138% FPL <sup>‡</sup>	5.0	14.0**	7.5	28.5** <sup>†</sup>	29.4** <sup>†</sup>	24.3** <sup>†</sup>
Group 2: Below 100% FPL	7.9	14.8**	12.8**	21.1**	26.8**	24.2** <sup>†</sup>
Had a usual source of care						
Group 1: At or below 138% FPL <sup>‡</sup>	-13.2	-6.8	-3.2	17.0* <sup>†</sup>	18.5** <sup>†</sup>	3.9
Group 2: Below 100% FPL	-3.4	4.1	4.1	10.1	18.8*	12.0

<sup>‡</sup>For this income group, low income is defined as family income below 100% of the federal poverty level (FPL) for the MHRS sample and at or below 138% of FPL for the NHIS sample.

Significantly different from zero at the \*.05 (\*\*.01) level, two-tailed test.

Significantly different from the estimate for low-income parents at the †.05 (††.01) level, two-tailed test.

Source: 2006–2010 MHRS, 2004–2010 NHIS, and 2004–2011 AHRS.

estimated to increase by from 10.1 to 18.8 percentage points based on the preferred models using propensity-score reweighting and the New York and other Northeastern states comparison groups, with three of the four estimates significantly different from zero and two of those estimates significantly different from the estimates for parents.

## DISCUSSION

As part of the ACA, states were given the option to expand Medicaid eligibility to nearly all nonelderly adults up to 138 percent of the FPL under Medicaid as part of the ACA. The largest component of this expansion population is childless adults, as they have not been eligible for Medicaid coverage in most states heretofore. Massachusetts included an expansion of coverage under the

Commonwealth Care program, a Medicaid-like program, to low-income childless adults as part of its 2006 health reform initiative. The reform effort in Massachusetts also included many other elements that were incorporated into the ACA, including a health insurance exchange, dependent coverage expansion, and an individual mandate for insurance coverage.

While the impacts of the ACA will vary across the states given the differences in their health care systems and policies in place prior to reform, the differences in their choices under reform, and their very different policy and economic environments, the findings from Massachusetts' 2006 reform highlight the potential for significant gains for low-income childless adults under the ACA. The evidence from this analysis, which combines data from a state survey with national survey data to support an evaluation that is not possible with either survey alone, suggests a strong response by low-income childless adults under health reform in states that expand Medicaid eligibility. For states that implement the Medicaid provisions of the ACA, we would expect to see large increases in coverage rates and commensurate gains in access to health care for low-income childless adults. These estimates provide preliminary information on the potential gains under the ACA for states that have expanded Medicaid eligibility and the potential losses for states that choose not to expand Medicaid.

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*Disclosures:* None.

*Disclaimer:* None.

## NOTES

1. For a description of five key health policy microsimulation models, see Abraham (2012).
2. Under the ACA, adults are Medicaid-eligible with a “modified adjusted gross income” (MAGI) at or below 133 percent of the FPL. ACA’s MAGI calculation is based on adjusted gross income as defined in the Internal Revenue Code, with a 5 percentage point disregard. With this disregard, the Medicaid eligibility threshold is effectively 138 percent of the FPL.
3. A June 28, 2012, US Supreme Court decision determined that states cannot be required to implement the ACA’s Medicaid expansion, making that component of the ACA a state option. See Supreme Court of the United States. 2012. National Federation of Independent Business et al. v. Sebelius, Secretary of Health and Human Services, et al. 567 U. S. (2012) [accessed on July 2, 2012]. Available at <http://www.supremecourt.gov/opinions/11pdf/11-393c3a2.pdf>.
4. For a summary of recent state surveys on health insurance coverage and health care access and use, see <http://www.shadac.org/content/state-survey-research-activity>.
5. Prior research using the NHIS to look at the impacts of health reform on the overall population in Massachusetts was constrained by small sample sizes (Long and Stockley 2011). Given that we are looking at the impacts of health reform on a small subset of the Massachusetts population, the sample size for this study in the NHIS is even more limited.
6. The fall 2006 survey was fielded as Commonwealth Care was beginning; however, enrollment started slowly.
7. The 2010 MHRS expanded the sample frame of the survey to include both land-line and cell-phone households. The survey is funded by the Blue Cross Blue Shield of Massachusetts Foundation, with supplemental funding at different times by the Commonwealth Fund and the Robert Wood Johnson Foundation.
8. That income break was only added to the MHRS in fall 2010.
9. Tabulations based on the American Community Survey for 2011 show that 76.8 percent of nonelderly adults with income at or below 138 percent of the FPL were below 100 percent of poverty.
10. The NHIS addresses missing income information by providing multiply imputed data. In this analysis, we define an adult with imputed income in the NHIS sample as low income if he or she would be defined as low income based on any of their imputed income values.
11. New York expanded public coverage to childless adults under a Section 1115 Medicaid waiver in 1997. The comparison here is to a state that had expanded eligibility to childless adults prior to the Massachusetts reforms rather than to a state without Medicaid coverage for childless adults.



12. The regression models are limited to demographic and socioeconomic measures that are defined consistently across the two surveys. The simple (unadjusted) differences and regression-adjusted differences are generally quite similar.
13. While the questions in the two surveys that focus on these measures are generally similar, there are differences in question wording and context.

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## SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix SA1: Author Matrix.