***The Affordable Care Act Research Paper***

 On March 23, 2010, President Obama signed into law the Patient Protection and

Affordable Care Act (ACA), the most inclusive reform of the U.S. medical system in at

least 45 years. The ACA transforms the non-group insurance market in the United States,

mandates that most residents have health insurance, significantly expands public insurance and

subsidizes private insurance coverage, raises revenues from a variety of new taxes, and reduces

and reorganizes spending under the nation’s largest health insurance plan, Medicare. If fully

implemented, the ACA promises to lead to a dramatically different health care landscape for the

United States in the years to come.

 Projecting the impacts of such fundamental reform to the health care system is troubled

with difficulty. But such forecasts were required for the legislative process, and were delivered

by the Congressional Budget Office (CBO). CBO projected that the ACA would increase health

insurance coverage by 32 million people and would raise federal government spending by almost

$1 trillion over the subsequent decade, but would raise revenues and reduce spending by even

more so that the bill overall reduced the federal budget deficit. These CBO projections were

central to the legislative debate over the ACA.

 In this article, I discuss the projected impact of the ACA in more detail, and describe

evidence that sheds light upon the accuracy of the projections. I begin by reviewing in broad

detail the structure of the ACA. I then review the evidence from a key case study that informs

our understanding of the ACA’s impacts: a comparable health reform that was carried out in

Massachusetts four years earlier. I discuss the key results from that earlier reform and what they

might imply for the impacts of the ACA. Finally, I discuss the projections of the impact of the

ACA and offer some observations on those estimates.

II. THE AFFORDABLE CARE ACT

 The ACA is an enormously detailed piece of legislation which touches on many aspects

of our health care system. I begin by providing a broad outline of the ACA’s key features to help

guide the discussion of the bill’s projected effects.

A. Background: U.S. Health Care

 The United States spends 17 percent of its gross domestic product (GDP) on health care,

by far the most of any nation in the world. Moreover, the rate of health care spending is rapidly

outstripping the rate of growth of our economy, so that by 2080 health care spending is projected

to account for 40 percent of the U.S. economy (CBO, 2010a).

 Despite this high level of spending, there remain enormous disparities in access to health

care in our nation. For example, the infant mortality rate for whites in the United States is 0.57 percent,

while for blacks it is more than twice as high, at 1.35 percent.1 Many of these disparities can be attributed to the fact that the United States is the only major industrialized nation without

universal access to health care. Almost one in five of the non-elderly, 50 million Americans,

have no health insurance coverage. The distribution of insurance coverage is shown in Table 1

(which is based on Fronstin, 2010).

 The primary source of insurance coverage in the United States is employer-sponsored

insurance (ESI), which covers the majority of non-elderly Americans in the United States. This is

due to both the risk pooling provided by the workplace setting and the large tax subsidy provided

to ESI. As discussed in more detail in Gruber (2011b), the federal government forgoes roughly

$250 billion per year by excluding compensation in the form of health insurance from income

and payroll taxation. Since health insurance provided through employers is purchased with pre

tax dollars while insurance provided outside the employment setting is bought with post-tax

dollars, there is a strong incentive for insurance to be provided in the employment setting.

 There are also two major sources of public insurance coverage. The Medicare program is

a universal insurance program for the elderly in the United States, while the Medicaid program

provides coverage for many of the poor, with a particular focus on low income children. As a

result, most uninsured are not the poorest Americans, but the “working poor” — those whose

income and age leaves them ineligible for public insurance coverage and who are not offered

insurance through their places of employment.

 The only avenue available to such individuals is the non-group insurance market. In most

states, however, this market discriminates against the sick. Non-group insurance often features

“pre-existing conditions exclusions” that exclude from coverage any spending on illnesses that

were present at the time of insurance purchase. Moreover, non-group insurance availability can

be limited and prices very high for those who become ill. In a dynamic sense, this market does

not provide real insurance protection against illness. As a result, those outside of the employer

and public insurance systems face significant financial risk from illness.

B. Broad Outline of the Affordable Care Act

 The core of the ACA is a “three-legged stool” designed to fix the broken non-employer

insurance market in the United States and expand health insurance coverage as a result. The first

leg of the stool includes reforms to the non-group insurance market. These include outlawing

exclusions for pre-existing conditions and other discriminatory practices, guaranteeing access to non-group insurance, and imposing limits on the ability of insurers to charge differential prices

by health status — prices for a given product can only vary by age (subject to a 3:1 limit) and

smoking status (subject to a 1.5:1 limit). In addition, minimum standards are set for insurance in

the non-group and small group markets, including a list of “essential benefits” that must be

included in an insurance package and a minimum “actuarial value” (the share of total spending

on the essential benefits package that is covered, on average for a typical population, by

insurance) of 60 percent.

 While these reforms are viewed by most as long overdue, most experts argued that they

cannot survive in a vacuum. In particular, if individuals are guaranteed insurance access at prices

that are independent of health status, then many may “free ride” by remaining uninsured until

they are sick and then buying insurance at average prices. Under these circumstances, insurers

will have to charge high prices to all to account for the fact that the pool buying insurance is

sicker than average. The resulting adverse selection cycle leads to high prices and a failed

insurance market. Indeed, this point is not just a theoretical curiosity. In the 1990s, five states

tried to reform their non-group insurance markets in such a manner and by 2006 these were five

of the most expensive states in the nation in which to purchase non-group insurance (Gruber,

2011a).

 The second leg of the stool is therefore a requirement that individuals purchase insurance,

or an individual mandate. More specifically, most individuals in the United States are required to

have coverage or to pay a penalty, which ultimately (by 2016) amounts to the larger of 2.5

percent of income or $695. The problem with an individual mandate, however, is that it may be impossible to enforce — as well as inadvisable to enforce — if insurance is not affordable. This motivates the third leg   of the stool: government subsidies to make insurance affordable for lower income families. Under the ACA, these subsidies come in two forms. The first is an expansion of the Medicaid program to all individuals with incomes below 133 percent of the poverty line (which is $10,830 for individuals and $22,050 for a family of four). The second is tax credits to offset the cost of

private non-group insurance. These tax credits are designed to cap the share of income that

individuals have to spend to get insurance, beginning with a cap at 3 percent of income at 133

percent of the poverty level and rising to a cap of 9.5 percent of income at 300 percent of the

poverty level (and remaining at 9.5 percent until 400 percent of the poverty level). In addition, if

individuals have incomes below the threshold for income tax filing, or if the cheapest health

insurance option available to them costs more than 8 percent of their income, they are exempt

from the mandate penalty.

 The ACA primarily finances these subsidies through six sources (with their associated

share of financing): (1) a reduction in reimbursements to private “Medicare Advantage”

programs that provide an alternative to the government Medicare program for seniors (14%); (2)

reductions in Medicare reimbursement, primarily through a reduction of the inflation adjustment

provided to hospitals each year for their reimbursements under Medicare (33%); (3) an increase

in the Medicare payroll tax by 0.9 percent, and the extension of that tax to capital income, for

singles with incomes of more than $200,000 per year and families with incomes of more than

$250,000 per year (21%); (4) new excise taxes on several of the sectors that are likely to benefit

from the expanded coverage of medical spending in the United States, including insurers,

pharmaceutical companies, and medical device manufacturers (11%); (5) the “Cadillac tax,” a

non-deductible 40 percent excise tax on insurance products that cost more than $10,200 for an

individual or $27,500 for a family in 2018, with those limits indexed each year to the consumer

price index (3%); and other revenue sources such as penalty payments by individuals and

employers and taxes on the higher wages that result from reduced employer spending on

insurance (21%).

 The ACA also includes a number of provisions to address the problem of rapidly rising

health costs in the United States. The first is the Cadillac tax, which should reduce the incidence

of very generous health insurance plans and thereby excessive demand for health care. The

second is new health insurance “exchanges,” state-organized marketplaces where non-group and

small group insurers must compete in a transparent marketplace that is designed to maximize

competition and lower premiums. The third is the Independent Payment Advisory Board, which

is charged with re-designing reimbursement of providers under Medicare to lower costs and

ensure quality; this board’s recommendations are subject to an up or down vote by Congress.

The fourth is a new research institute — with sizeable funding — to study the comparative

effectiveness of medical treatments, in an effort to understand which treatments are most cost

effective. Finally, there are many pilot programs examining alternative organizations and

reimbursement structures for medical providers in an attempt to finds ways to undo the

pernicious incentives of our retrospective “fee-for-service” medical reimbursement system.

There are dozens of other provisions in the ACA that are not reviewed here as well, on topics

ranging from incentives for improving the quality of health care, to a new social insurance

program for long-term care, to incentives to increase primary care provision, and so on.

III. THE MASSACHUSETTS CASE STUDY

 Projecting the impacts of a fundamental reform such as that described above is an

enormous challenge. The effects of the ACA will depend on dozens of behavioral responses by

firms and individuals (as well as state governments). There are several decades of empirical

research in health economics that can help inform our understanding of these behavioral

responses; Gruber (2002) provides a review of some of that evidence. But this past evidence is

by necessity based on changes to the existing health insurance environment, and may not be fully

indicative of the impacts of a fundamental change in the environment as sweeping as ACA.

A. The Massachusetts Experiment

 Fortunately, our understanding of the impacts of the ACA can be further informed by the

experience of Massachusetts. In April 2006, Massachusetts passed a health reform that was

based on the same “three-legged stool” as the ACA, and in many ways inspired the federal

program. Massachusetts was one of the five states that had already reformed its non-group

markets in the 1990s and, as a result, had a small and expensive non-group market. Part of the

goal of reform in the state was to fix that market, while covering the majority of the roughly

600,000 uninsured residents of the state.

 The key aspects of reform in Massachusetts were to supplement the existing reforms of

the non-group market with the introduction of an individual mandate to purchase insurance and

the creation of a new program, Commonwealth Care, which provides heavily subsidized

insurance for those below 300 percent of the poverty line. In addition, a new marketplace for

non-group insurance, the Connector, was created to facilitate purchase for those who did not have access to employer-sponsored insurance.2 The Massachusetts reform did not include much

of what is incorporated into the ACA, in particular the revenue sources — reform in

Massachusetts was financed jointly by the federal government and by an existing tax that

financed care for the uninsured — and the efforts at cost control discussed above. But it does

B. Results

 The results of the Massachusetts reform have been encouraging along a number of dimensions.3 First; there has been a dramatic expansion of health insurance coverage in the state.

The data vary across sources, with state-level data from the Current Population Survey (CPS)

showing a 60 percent decline in the uninsured since 2006 — over a period of time where the

share of the national population without insurance was rising by 6 percent — and data collected by the state’s Division of Health Care Finance and Policy showing a decline of 70 percent.4

Either number indicates a sizeable reduction in the number of uninsured, with Massachusetts

having by far the lowest un-insurance rate in the nation. A major concern with such a large expansion in access to care is that it will cause congestion on the supply side of the market. Indeed, many have argued that we have a chronic shortage of primary care physicians in the United States and that expanding coverage will only worsen that shortage. This has not been the case in Massachusetts, however. A recent study by the Massachusetts Medical Society found that average wait times for both family and internal medicine were basically flat in the period since the law passed (Massachusetts Medical Society, 2011).

 Moreover, this expansion in insurance coverage has been associated with a rise in access

to care. The share of the population with a usual source of care, the share with a doctor’s visit in

the last 12 months, the share receiving preventive care, and the share receiving dental care all

rose significantly from the fall of 2006 to the fall of 2008 (Long and Masi, 2009). Miller (2011)

finds a modest reduction in the rate of utilization of emergency care in the state, while the

Division of Health Care Finance and Policy (2009) reports a 40% decline in uncompensated care

in the first year after reform

 Second, rather than a crowd-out of private insurance through the expansion of a publicly

funded entitlement, there has been a “crowd-in” through a rapidly rising rate of employer-insured

individuals. According to estimates from the Current Population Survey, the share of the

Massachusetts population with employer-sponsored insurance rose by 0.6 percent from 2006–

2009, while over the same period the share of the national population with employer-sponsored

insurance fell by 4 percent. Some of this “crowd-in” is due to increased enrollment in employer

sponsored insurance by those endeavoring to meet the requirements of the mandate, but some

has actually been through higher rates of employer insurance offering. The rate of employer

provided insurance offering in Massachusetts rose from 70 percent in 2005 to 76 percent in 2009,

while it remained flat at 60 percent nationally (Massachusetts Division of Health Care Financing

and Policy, 2010). There is no obvious explanation for this increase in employer offering as the

law introduces incentives for employers to drop insurance (by covering their low income

employees outside the employer setting) and does little to penalize those firms that do drop

coverage. The best potential explanation for this result is that there was a non-market impact of

the mandate on employer behavior, with employees demanding coverage to meet the mandate

and employers increasing coverage to meet the demand.

 Fourth, the mandate implementation has been very smooth. Over 98 percent of tax filers

required to file health insurance information with their tax returns have complied with the filing

requirement. Out of the at least 500,000 individuals who were uninsured before reform, only

53,000 ended up being assessed penalties for not having insurance in 2008 (the remainder either

having gained insurance or were exempt from penalties) (Massachusetts Department of Revenue,

2009). Only 2,500 of those individuals filed and followed through on appeals of their penalty; the penalty was waived in about three quarters of the cases.5

 Fifth, the costs of administering health reform have been quite low. The Connector was

given only $25 million in seed funding, and its net worth remains at $20 million. The ongoing

administrative costs are funded by an insurance charge of only 3 percent, which is very small compared to the typical loads found in the non-group and small group markets.6

 Sixth, the reform has generally been popular. Sixty-nine percent of state residents

supported reform in 2006, and that number has remained essentially unchanged, with 67%

support in 2009 (Long and Stockley, 2009).

 Seventh, premiums have fallen dramatically in the non-group market. According to

America’s Health Insurance Plans (2007, 2009), from 2006–2009 non-group premiums rose by

14 percent nationally; over that same period, they fell by 40 percent in Massachusetts. Some of

that decline was due to a reduction in the level of non-group benefits, but this is a sizeable decline

in any case.

 Eighth, there has been no meaningful impact on employer-sponsored insurance

premiums. Cogan, Hubbard, and Kessler (2010) argue that group premiums rose in

Massachusetts from 2006–2008. Using state-level data from the Medical Expenditure Panel

Insurance Component, they show that over this period single group premiums rose by 8.7 percent

in Massachusetts, but only 6.5 percent nationally, for a 2.2 percent excess growth rate in

Massachusetts; for families, premiums grew by 12.2 percent in Massachusetts but only 8.1

percent nationally, for a 4.1 percent excess growth rate. But these tabulations are very imprecise due to the very noisy nature of premium movements over time at the state level. Over the 2006–2008 period, the standard deviation of the state premium change was 4.6 percent for single premiums and 5.3 percent for family premiums. This implies that the changes documented by this article are not statistically meaningful in that they are well below a one standard deviation change in premiums. To illustrate this point further, consider Figure 1, which shows the change in single premiums from 2006–2008 by state, graphed against the state rankings of premium change. Massachusetts is ranked 31st, which is somewhat higher than the median, but clearly not distinguishable from states around it. The

change in premiums for Massachusetts, for example, is well below that of other neighboring New England states such as Vermont (ranked 46) or New Hampshire (ranked 47).7

 Finally, the costs of reform at full implementation have been very close to original

projections. Legislative staff in 2006 projected that the Commonwealth Care program would cost

$750 million when fully implemented. In FY 2009, the first full year of implementation, costs

were $800 million. The Massachusetts Taxpayers Foundation (2009) undertook a comprehensive

study of the net cost of reform, taking into account the costs of Commonwealth Care and Mass

Health expansions, as well as savings through uncompensated care and supplemental payments

to safety net hospitals. The study concluded that the net cost of reform in the state has been $707

million, roughly half of which is borne by the federal government. Given that the state has newly

insured about 300,000 individuals according to survey evidence, that is a cost to the state of only

$2,350 per newly insured. This is a very low cost per newly insured compared to earlier estimates of the cost of alternative approaches to expanding insurance coverage (Gruber, 2008). This largely reflects the fact that so much of the increase in insurance coverage has been through private coverageIV. IMPLICATIONS FOR THE ACA The projections of the impacts of the ACA from CBO (2010b) are summarized in Table 2. The top panel shows projected impacts on coverage. CBO projects that there will be a very modest erosion of employer-sponsored insurance, with large increases in both public insurance and non-group insurance, so that there is an overall reduction in the number of uninsured of 32 million people. They also project about $940 billion in new spending; offset with $1,080 billion in spending reductions and revenue increases, for a first decade deficit reduction of about $140

billion. Moreover, in their discussion of the bill, CBO notes that they project the deficit reduction

to increase over time, and reach more than $1 trillion in the second decade.

A. Population Movements

 Perhaps the most surprising aspect of the CBO estimates is the rather modest erosion of

employer-sponsored insurance that they project. But, in fact, this estimate is consistent with past

evidence as well as with the experience of Massachusetts.

 This small erosion occurs for several reasons. First, more than half of employees covered

by health insurance are in firms with more than 100 employees, and past evidence suggests that

such firms are not price sensitive in their decisions to offer insurance (Gruber and Lettau, 2004).

 Second, the subsidies under the ACA are not very generous above about 250 percent of

the poverty line, so that for most firms the majority of workers will not see substantially better

deals outside of the employment setting rather than inside. To illustrate this point, I draw on the

Gruber micro simulation Model (GMSIM), a large-scale econometric simulation model that I

have developed over the past dozen years to model health care reforms. To the extent that CBO

has made details of their model public, in many ways the GMSIM mirrors the CBO approach to modeling health reform.8

 To model firm behavior in such micro simulation models, it is important to understand

those firms make decisions based on the firm-wide aggregate effects of a policy. To mimic this in

GMSIM, we construct “synthetic firms” that are meant to reflect the demographics of actual

firms. The core of this computation comes from U.S. Bureau of Labor Statistics (BLS) data

providing the earnings distribution of co-workers for individuals of any given earnings level, for

various firm sizes and regions of the country. Using these data, the model randomly selects

individuals in the same firm size/region/health insurance offering cell as a given CPS worker in

order to statistically replicate the earnings distribution that the BLS data would predict for that

worker. These workers then become the co-workers in a worker’s synthetic firm.

 Using these synthetic firms, we can look at the composition of firms below 100

employees to assess the extent to which low-income workers are concentrated in such firms. In

fact, we find that only one-quarter of small firms have more than 10 percent of their employees

in families with incomes of less than 133 percent of the poverty line and virtually none have

more than 50 percent of their employees with incomes less than that amount. Only 21 percent of

firms have more than 10 percent of their employees in families with incomes of 133–250 percent

of the poverty line and once again virtually no firms have more than half of their employees

earning in that range.

Bibliography

1 The Henry J. Kaiser Family Foundation, “Infant Mortality Rate (Deaths per 1,000 Live Births) by Race/Ethnicity, Linked Files, 2004–2006,” http://www.statehealthfacts.org/comparetable.jsp?cat=2&ind=48.

2 For more information on the Connector and Massachusetts health reform in general, see www.mahealthconnector.org.

3 This section draws heavily on and updates Gruber (2011a).

 4 The former figure comes from data tabulations from the U.S. Census Bureau, Current Population Survey, www.census.gov; the latter figure comes from the state’s Division of Health Care Finance and Policy, Health Care in Massachusetts: Key Indicators, <http://www.mass.gov/Eeohhs2/docs/dhcfp/r/pubs/10/key_indicators_november_2010.pdf>.

5 This figure is based on private communication with Connector staff.

 6 This figure is based on private communication with Connector staff.

7 Note that the change in un-insurance rate and non-group premiums are both highly significant relative to other states over this time period.

8 A detailed appendix that describes GMSIM is available at MIT Department of Economics, “Documentation for the Gruber Microsimulation Model,” http://econ-www.mit.edu/files/5939.