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ABSTRACT

As we approach the tenth anniversary of the passage of the Affordable Care Act, it is important to reflect on what has been learned about the impacts of this major reform. In this paper we review the literature on the impacts of the ACA on patients, providers and the economy. We find strong evidence that the ACA's provisions have increased insurance coverage. There is also a clearly positive effect on access to and consumption of health care, with suggestive but more limited evidence on improved health outcomes. There is no evidence of significant reductions in provider access, changes in labor supply, or increased budgetary pressures on state governments, and the law's total federal cost through 2018 has been less than predicted. We conclude by describing key policy implications and future areas for research.

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In March 2010, the U.S. Congress passed the Affordable Care Act (ACA), perhaps the most significant expansion of the U.S. social safety net since the Great Society programs of the 1960s. Among other things, the law newly regulated individual insurance markets, mandated individual purchase of insurance, heavily subsidized the purchase of insurance for low income populations, reduced Medicare reimbursement of insurance companies and hospitals, and imposed new taxes on wealthy households and the medical sector.

It has now been almost ten years since the law was passed, and more than five since the most significant provisions were implemented in January 2014. In response to the law's implementation, the health economics and health services research communities have published hundreds of articles evaluating the impact of the law on a wide variety of outcomes for individuals, firms, medical providers, and governments.

In this article, we assess what we have learned about the impact of the ACA in four domains: health insurance coverage; health care utilization and health outcomes; health care provider access and payment; and economic implications for employment and government budgets. We do not do a formal meta-analysis nor do we review every paper written on these topics over the past decade; rather, we review key findings from important studies, highlighting the methodological approaches and challenges in this literature and pointing to unanswered questions and future research opportunities.

Notably, this review does not cover a large body of economic research related to the ACA beyond the primary outcomes described above. Dozens of studies not described here examine important questions including (but not limited to) the impact of exchange structure and regulations on premiums, the proper design of risk adjustment within exchanges, determinants of consumer plan choices within the marketplace, and the effects of provider networks.

An important point that we emphasize throughout is the increasing difficulty of associating effects that are more indirect with a policy change of this magnitude. For example, there are direct impacts of the ACA on insurance coverage that are large relative to other underlying factors that drive insurance coverage in the U.S. For such impacts, time series comparisons can convincingly demonstrate the significant impact of the ACA, and well-identified empirical approaches leveraging state and country-level variation yield estimates that are plausibly interpreted as causal.

There are also more indirect or downstream impacts on health care utilization and health outcomes – such as chronic disease outcomes and mortality – which are harder to uncover due to other trends that might be offsetting or augmenting the offsetting the impacts of the ACA, and the fact that insurance coverage is itself only responsible for a share of the variation in these outcomes. For these downstream impacts, it is critical to use approaches that capture other time series factors that might affect outcomes, but sufficient variation and data adequacy often limit our ability to draw rigorous and sufficiently precise estimates of the ACA's effects. We discuss the primary methods that have been used in the attempt to measure these other effects, as well as the main limitations in these domains. Finally, we also assess the literature on the ACA's potential non-health related impacts such as employment or government budget changes.

Our paper begins with a brief overview of the key features of the Affordable Care Act. A more comprehensive overview of the entire legislation is available elsewhere.[1] Here, we focus on providing a summary of the key provisions that are likely to be central for impacts on the outcomes we consider. We then turn to a review of the evidence in the domains noted above, before drawing conclusions about what we have learned.

Part I: The Affordable Care Act: Major Features and Evaluation Approaches

The ACA was a multi-faceted law that touched almost every aspect of the health care system in one way or another.[1] Some of its provisions never became law, such as a new program for long-term care insurance (the ill-fated CLASS Act). Others have been repeatedly delayed and may never see the light of day, such as the "Cadillac Tax" on high-cost employer insurance plans. Many other provisions were focused on specific populations, such as Native Americans, which will not be the focus of this review.[2] And other provisions were focused primarily on cost control, such as a wide variety of experiments with health care delivery reform.[3]

Our focus in this paper will be on the provisions of the ACA that are most central to health insurance coverage. These include primarily:

Insurance Market Regulation: The ACA imposed community rating regulations (which were already in place in several states) nation-wide, ending the ability of insurers to exclude pre-existing conditions, to deny insurance issue or reenrollment based on health, or to set premiums according to health status. The ACA also included other insurance market regulations, such as a mandate that family insurance plans allow young adults to remain as dependents on their parents' coverage until the age of 26, and an annual limit on enrollees' out-of-pocket costs (currently $6,600 for individuals and $13,200 for families).

Individual Mandate: The ACA imposed an individual mandate on all legal residents to purchase insurance (excluding those for whom the lowest-cost insurance option costs more than 8% of income), and a tax penalty of the larger of $695 or 2.5% of taxable income for not buying insurance. This tax penalty for the mandate was reduced to zero, however, as part of the Tax Cuts and Jobs Act of 2017.

Medicaid Expansions: The ACA expanded Medicaid eligibility to all qualifying legal residents (U.S. citizens and legal permanent residents after a 5-year waiting period) with incomes below 138% of the poverty line. This change moved the program for the first time to a purely means-tested program, rather than one based on categorical eligibility (such as parental status or pregnancy, disability, or age group – i.e. children and the elderly). However, subsequent to the passage of the ACA, the Supreme Court ruled in 2012 that this Medicaid expansion was optional for states. As a result, only 25 states (plus Washington DC) initially adopted the Medicaid expansion, while another 11 states have since expanded their programs, as of April 2019 (including 3 states that passed ballot referenda in 2018 but have yet to implement the expansion).[4]

State Exchanges and Premium Tax Credits: The law also established state insurance exchanges, which are regulated marketplaces through which individuals could shop for insurance (along with parallel exchanges for small businesses that never really emerged as a viable option). These exchanges were intended to be state-run but a lack of interest and/or capacity in many states led to the creation of a federal backstop (*healthcare.gov*), to which the majority of the states turned for their exchange enrollment.

The basic structure of the exchanges was a set of generosity tiers (bronze, silver, gold and platinum) distinguished by the actuarial value of all plans offered on the tier (60, 70, 80 and 90%, respectively). Some states, such as California or Massachusetts, went further in regulating the cost sharing structure of plans on each tier or offering additional subsidies.

The ACA also introduced generous advanced premium tax credits designed to help offset the cost of insurance for those with incomes between 100 and 400% of the poverty line who were not eligible for Medicaid or Medicare. In particular, the value of tax credits is the difference

between a statutorily-determined percentage of income and the cost of the second-lowest silver plan available on the exchanges. For instance, individuals with incomes at 133% of poverty are required to pay 3% of their income for health insurance, and the government will pay the rest; this percentage rises to 9.5% of income by 400% of poverty, with no subsidies above that level. In addition, cost sharing subsidies (CSRs) provided additional coverage for out-of-pocket costs to those below 250% of the poverty line.

Given these provisions, the literature on the impacts of the ACA has focused on six different identification strategies to address the issues raised in the introduction. In reviewing the studies in the tables below, we will denote the type of identification strategy that is used in the study.

Some studies are just time series (TS) analyses, relying on sharp breaks in the series to illustrate causal impacts; others are purely cross-sectional comparisons (CS), that use multivariate regression analysis to control for confounding factors. A number of studies rely on the dependent coverage provisions of the law (DCP), typically by comparing outcomes for those below and above age 26 over time. Perhaps the most common empirical strategy is to use the fact that the Medicaid expansions (ME) took place in different states over different times, allowing for a difference-in-difference research design. Some studies use a regression discontinuity design that relies, for example, on specific income cutoffs for income subsidies or mandate enforcement (RDD). Finally, some studies use triple-difference strategies (DDD) based on variation in rules by state (or county), year, and a third category, which in various studies has included income groups (as a measure of eligibility for subsidized coverage), area pre-ACA uninsured rates or poverty rates (as a measure of geographic expansion intensity), or racial/ethnic groupings (to study disparities).

Part II: Effects of the ACA on Insurance Coverage

One of the main goals – if not the primary goal – of the ACA was to expand insurance coverage in the U.S. It is important to note that this is related to, but distinct from, the goal of increasing access to health care and thereby improving health (reviewed in the next section). In traditional economic terms, the central role of any kind of insurance is financial protection, not health improvement. Market failures – primarily adverse selection – in the individual insurance markets before the ACA resulted in the lack of fairly-priced coverage limited coverage in this market and put a significant number of persons at financial risk. Through community rating and guaranteed issue, the ACA ended discrimination based on health status. Combining these new provisions with mandated participation to address adverse selection as well as generous means-tested subsidies through Medicaid and premium tax credits, the ACA endeavored to provide financial protection to millions of Americans.

Figure 1 shows the uninsurance rate in the U.S. over the past three decades. Uninsurance rose modestly throughout the 1990s and 2000s, with deviations from trend that match economic conditions. The rate rose again during the "great recession" of the late 2000s, before declining in the early 2010s as the economy improved.

The striking break in the rate after 2014 is notable. From 2013 to 2016, the uninsured rate among non-elderly U.S. residents fell from 16.6% to 10.4%, according the National Health Interview Survey, with the latter figure representing the lowest level in U.S. history.[5] There is no plausible reason for this radical deviation from trend other than the passage of the ACA, with projections in the absence of the ACA showing little to no major changes in coverage rates.[6,7]

Further evidence of the role of the ACA is provided by the recent plateauing or possibly even an increase in the uninsurance rate since 2017, despite an improving economy.[8-10] This corresponds to the weakening of key provisions of the insurance market discussed above, including reduced marketplace enrollment outreach by the federal government, introduction of short-term plans not subject to the ACA's consumer protections, and most recently the removal of the individual mandate, though coverage estimates are not yet available since the mandate's elimination.

While the overall impact of the ACA is clear from the time series, a large literature has attempted to measure the effects of specific provisions of the law.

One of the most studied provisions is the extension of dependent coverage to age 26, which was put in place right after the law passed (while most provisions were delayed until 2014). This policy, often called the "dependent coverage provision," has been studied primarily by comparing changes in insurance coverage for those in their early 20s to those in their late 20s. Studies have found large coverage gains, ranging from 1 to 3 million more young adults with health insurance, depending on the data source and time frame of analysis, with the federal government's final estimate in a 2016 report of 2.3 million more adults insured.[11-14] In addition to this shift from uninsured to parental coverage, the policy also induced some young adults to drop coverage in their own name to become a dependent on their parents' plans.[11,15]

Several studies have also compared the effects of the dependent coverage provision in states which already had similar provisions in effect to states without such insurance provisions, though the state laws were considerably weaker due to the exclusion of large self-insured firms and additional restrictions on eligibility. In general, studies have found the federal policy led to

significant coverage gains in states both with and without pre-existing dependent-coverage laws.[11,16]

In 2014, the rest of the law's major coverage provisions took effect, and the complexity and simultaneity of these changes makes them more difficult to decompose. These provisions have generally been studied in isolation, though a few studies consider multiple aspects of the law concurrently.

Most readily studied are the Medicaid expansions. The fact that states were given the option to expand Medicaid and that states did so at different times provides an obvious quasi-experimental framework for investigating the impact of expansions. Estimates in administrative data[17] and survey data[18-20] both indicate large coverage gains for adults of lower socioeconomic status (either by income or education) in expansion states vs. non-expansion states. A federal government report pegged the enrollment increase at 14.5 million people by beginning of 2016.[14] One somewhat unexpected finding is that nearly half of the increase in Medicaid enrollment occurred among those who were already eligible for the program in both expansion and non-expansion states, the so called "woodwork effect,"[21] which also included increased take-up among nearly one million children.[22-24] Several studies have also demonstrated narrowing of racial/ethnic disparities in insurance coverage after implementation of the ACA, though substantial disparities remain.[25,26]

It is more difficult to study the impact of the introduction of exchanges per se, since every state has either a national or state-run exchange, and premium subsidies are available in all states. Aggregate enrollment in the exchanges was 12.2 million people by 2017,[27] well below initial CBO estimates of 23 million.[7] A sizeable share of those enrollees already had individual market insurance before the ACA, so this figure overestimates the net coverage increase. Studies

demonstrate heterogeneity in enrollment by type of exchange, with state-run exchanges experiencing nearly twice as large a demand elasticity based on premium subsidies,[21] which may be explained at least in part by differing state approaches to outreach efforts and support for the ACA's navigator program designed to improve and facilitate new enrollment.[28-30] Concerns remain, however, that insurer exits, high premium growth in some areas (particularly those with limited competition[31]), and ongoing political uncertainty over the law may undermine exchange enrollment in the near future.[32]

A particularly important question, given recent policy developments, is the role of the individual mandate. Published studies show modest or no impact of individual mandate penalty details, but some evidence of a "taste for compliance" inducing Marketplace enrollment.[21,33] A direct beneficiary survey indicated that 19% of Californians with non-group coverage say the mandate influenced their decision to purchase insurance.[34] A recent working paper using tax data and discontinuities in the premium penalty find stronger evidence of an effect on coverage, though with modest population-level impacts.[35] In part based on this body of research, the CBO reduced its estimate of the mandate's effects on coverage after the ACA repeal debate in 2017.[36]

With these three large policies all taking effect in 2014, it has been challenging to disentangle their relative contributions. One paper, using a triple-difference model leveraging income, geographic, and time variation in Medicaid eligibility, premium subsidies, and the mandate penalty, attributed roughly 60% of the ACA's coverage gains since 2014 to Medicaid, 40% to premium subsidies, and no detectable effect of the mandate penalty details – though this model was unable to assess for a broader compliance effect of the mandate.[21] These results are similar in general magnitude to simpler estimates based on time series analyses,[14] which all

indicate that both the public and private market approaches of the ACA were critical to the law's coverage effects.

Despite these large expansions of non-group private insurance and Medicaid, the major source of insurance coverage in the U.S. remains employer-sponsored coverage. As such, a primary concern with the ACA is that it would "crowd out" private insurance provision. Prior evidence on this front had been mixed, with a variety of studies (reviewed in Gruber and Simon, 2008[37]) suggesting that state Medicaid expansions in the 1980s-2000s led to significant crowdout, while studies of the Massachusetts experience found little crowd-out (and perhaps crowd-in).[38] In response to the ACA, it appears that there was also no crowd-out of employer coverage, with roughly stable ESI offering rates and overall coverage rates.[39,40] One reason for the much weaker crowd-out effects in response to the Massachusetts plan and the ACA may be the individual mandate, which increases the value of employer-sponsored insurance,[41] as well as the employer mandate penalty.[40]

In summary, the ACA clearly and dramatically increased insurance coverage in the U.S. Despite only partial state adoption, the Medicaid expansions appear to be the major driver of these coverage improvements – both through enrollment of those newly entitled and those who were previously eligible. Enrollment in the private market has been substantial but less successful than anticipated, and may continue to diminish unless further actions are taken to bolster the exchange markets and subsidies.

Part III: Effects of the ACA on Health Care Utilization and Health

While the primary goal of the ACA was to expand financial protection through insurance, a secondary goal was to translate this insurance expansion into improved health. This could

occur through two channels. The traditional channel for doing so is increased health care utilization among the uninsured. A large literature documents that past expansions of insurance led to increased utilization, with many studies showing resulting improvements in various aspects of health, as summarized in a recent review article.[42] But there were reasons to be concerned that these results may not fully apply to the ACA. For example, the large rise in coverage in disadvantaged areas could run into constraints on the set of physicians available – and willing – to treat newly covered patients. Furthermore, not all studies showed consistent health impacts, including the lack of a significant change in several chronic disease indicators studied in the Oregon Health Insurance Experiment.[43] The ACA's much larger coverage expansion offers an important opportunity to evaluate some of these questions in a different context, albeit without a randomized design.

Table 2 reviews the studies on health insurance utilization and health. A particular goal of the ACA was to increase access to and use of preventive care. This appears to have been accomplished. Studies using multiple research designs and empirical approaches find reductions in cost-related delays in care and an increased share of the population with a personal physician and regular location of care. Studies have found increased use of preventive services ranging from wellness exams to diabetes screening, although the results vary by service and study.[44,45] Another study found that the young adult expansions led to modest increases in early initiation of prenatal care.[46]

The ACA was associated with clear increases in outpatient care and prescription drugs, with the largest increases in prescription drug utilization due to the Medicaid expansion occurring for long-term medications such as contraception, diabetes medications, and

cardiovascular medications.[47] Medication adherence improved as well, presumably due to enhanced affordability.[48,49]

Dental care is a particularly interesting area, since it is one benefit that varies considerably across states as to whether it is included in Medicaid. Indeed, there is mixed evidence on whether the Medicaid expansions increased use of dental care, with one study finding no change in dental visit rates after expansion while another found a 9% increase in dental visits among low-income childless adults.[44,50] An important question for further research is the long run implications of improved dental care for overall health, as some studies associate improved dental health with reduced incidence of other disease.[51]

A particularly controversial area of utilization analysis is emergency care. Casual observers suggested that a major benefit of coverage expansions would be reduced use of the ED by the uninsured, and a study of the Massachusetts health insurance reform by Miller (2012) seemed to confirm this, with ED use falling within a few years of expansion.[52] But while the ACA was being implemented, the striking findings of Taubman et al. (2014) from the Oregon Health Insurance Experiment showed that expanded Medicaid led to a dramatic rise in ED use.[53] The authors suggest that this is not surprising since one impact of insurance coverage is to significantly lower the price of ED care.

This controversy is not fully resolved by studies of ED use under the ACA. Studies of the young adult expansions suggested a significant reduction in ED utilization (particularly non-urgent visits),[54] while studies of Medicaid expansion show either no effect[55] or some reduction[48] (paralleling the Miller results for MA). A working paper examining the *loss* of public coverage among migrants in Hawaii (only partially offset by new private insurance enrollment) showed reductions in overall ED use,[56] which is potentially consistent with the Oregon findings.

Meanwhile, the Medicaid expansion does not appear to have led to detectable changes in overall inpatient hospitalization utilization,[57] though large changes in payer mix have occurred and are discussed in the next section.

Health economists have for many years emphasized that the primary driver of high health costs in the U.S. is expenditures on the chronically ill. Another goal of the ACA was to improve chronic disease management. The available evidence suggests that chronic care did improve under the ACA, in particular through increased use of prescription medicines, including medications for the treatment of substance use disorder.[47,48,58] Both the Medicaid expansion and new Marketplace coverage have been found to increase diagnoses of chronic conditions,[59,60] which can potentially lead to more efficient treatment through early detection. An open question is whether, on net, these changes are large enough to reduce overall expenditures – although it seems likely, based on medical guidelines, that they were at a minimum a cost effective means of improving health.

Of course, the major goal of increased utilization is not just more care, but better care and improved health outcomes. Health outcomes can be measured in three ways. The first is self-reported health and well-being. A large literatures shows that self-reports – while noisy – are highly correlated with objective health outcomes such as mortality.[61,62]

Most studies show significant improvements in self-reported health associated with various aspects of the ACA. Multiple evaluations of the young adult expansions studied found improved self-reported health, compared to controls.[63-65] Studies of state Medicaid expansions find mixed results for self-rated health, though the general pattern is that longer-term studies and studies of states with bigger coverage gains have more consistently indicated a positive effect.[44,48,49,66,67] While point estimates vary, one study used an IV approach to estimate a local

average treatment effect from gaining Medicaid, finding a 23 percentage-point increase in the likelihood of excellent self-reported health (though with very wide confidence intervals),[48] slightly larger than the analogous estimate from Oregon experiment, which found a 13 percentage-point increase in good/very good/excellent health.[68] Meanwhile, other studies have identified improved quality of life[69] and reduced psychological distress[70] due to the Medicaid expansion (also consistent with the Oregon experiment).

The second approach to measuring health is to look for clinical indicators of improved quality of care and health outcomes. Two studies have assessed the impacts of the ACA on surgical care. One found that the dependent coverage provision led to reduced rates of perforation among patients with acute appendicitis.[71] An evaluation of Medicaid expansion's effect on several serious but common conditions including appendicitis, peripheral artery disease, and aortic aneurysms found evidence of earlier presentation for care and improved outcomes as indicated by fewer perforated appendices, ruptured aneurysms, and limb amputations.[72] A study of the impact of the young adult expansions on maternity care finds increased early prenatal care and modest reductions in rates of pre-term birth, particularly for unmarried mothers.[46] Meanwhile, a similar assessment of birth outcomes after the Medicaid expansion (which did not directly affect pregnancy-related eligibility, but may have created spillovers on birth outcomes via the 'woodwork effect') found no change in overall rates of low birth weight and preterm births, but did find a narrowing of black-white disparities in these outcomes.[73]

Finally, perhaps the most definitive approach to assessing health outcomes is to examine mortality. The difficulty with assessing mortality changes is that this is (fortunately) a rare event in the U.S. for the non-elderly, who are the primary focus of the ACA. Indeed, Black and

colleagues argue that the ACA itself is underpowered to detect any mortality effects at the population level, given that coverage gains occurred in all states, and pre-ACA trends may preclude using the Medicaid expansion as an identification strategy for this outcome.[74] A recent working paper by Miller and Wherry challenges this characterization by matching a large sample of survey data with administrative death records. They find no differential pre-trends across expansion and non-expansion states and are able to estimate a precise 8% decline in mortality in the expansion states; they confirm their findings by showing no mortality changes among those over age 65 who should have been unaffected.[75]

Another angle to examining mortality is to measure changes among more targeted populations gaining coverage. Two published studies have found significant mortality reductions due to the ACA – one examining the Medicaid expansion's effects among high risk patients starting dialysis,[76] and the other finding reduced disease-related mortality among young adults gaining coverage under the dependent coverage provision.[77]

This is an impressive literature, but holes remain. Most important is additional studies of the impact of the ACA on a wide variety of health outcomes. Increased data availability over time should allow for richer studies of mortality effects and other long-term health impacts. But a broad perspective on health and general well-being is essential as well. As the studies reviewed above emphasize, health is more than just physical measurements and mortality. In a nation where the stresses of daily life are leading to increasing numbers of "deaths of despair" via suicide and drug overdoses,[78] understanding the effects of mental health and overall well-being is particularly critical.

Equally important is thinking about the cost-effectiveness of these health improvements, relative to other government interventions inside and outside of the health care space – and the

potential heterogeneity across modes of insurance expansion. For example, several states have opted to use Medicaid funds to expand coverage to low income adults via subsidized Marketplace plans (an approach sometimes called "the private option"). A longitudinal analysis of this policy in Arkansas found similar improvements in health care access and self-reported health as with a traditional Medicaid expansion, although with more financial risk to beneficiaries and at greater apparent cost to the federal government.[45,79] Given that approximately 30 millions people remain uninsured in the U.S., additional approaches to expanding insurance coverage will be required, and these should be informed ex-ante by evidence on the most cost-effective pathways to improved health and well-being.

Part IV: Effects of the ACA on Health Care Providers

As the largest change to the health care system in decades, it is inevitable that the ACA would have significant impacts on health care providers. A smaller literature has emerged to investigate these effects.

A major motivation for the ACA was to reduce uncompensated care costs to hospitals, and studies suggest that this goal was achieved. Nikpay and colleagues find that the Medicaid expansions were associated with a nearly 50% decline in uninsured hospital stays,[80] and Blavin estimated a 30% decline in hospital uncompensated care.[81] At the same time, many of the increased hospitalizations were paid for by Medicaid, which typically reimburses at a lower level than private insurance or Medicare; the law also included a reduced rate of growth of Medicare reimbursement. While these factors offset some of the financial gains to hospitals from reduced uncompensated care,[82] the net result of Medicaid expansion still appears to have been an improvement in the excess margins of hospitals relative to non-expansion states.[81]

One concern with the ACA was that expanding demand for health care, without significantly increasing supply, would lead to more binding constraints on access to care. This concern is particularly relevant given lower provider willingness to accept Medicaid patients due to lower reimbursement rates, compared to private insurance and Medicare.[83] The early evidence on this point is mixed. One study showed an increase in wait times for appointments after Medicaid expansion,[49] while others have shown unchanged or increased availability of appointments after expansion[84,85] – in part attributable to the ACA's 2013 policy that temporarily increased primary care reimbursement rates in Medicaid to match Medicare rates.[86] Despite these concerns about provider availability, one analysis found that the improvements in access to care associated with Medicaid expansion occurred even in federal-designated primary care provider shortage areas.[45] Thus, while provider participation in Medicaid remains an important area for evaluation, any shortages have not been so dire as to prevent substantial benefits in access to care for low-income individuals enrolled in the program.

Federally qualified health centers (FQHC) are an essentially source of care for millions of low income Americans, both the uninsured and those with Medicaid. Some researchers have examined this population in particular, finding that Medicaid expansion led to substantially larger effects on coverage among community health center patients than in the population as a whole, with a 12 percentage-point increase in Medicaid and 11 point decrease in the uninsured rate. However, the total volume of patients seen in community health centers increased similarly in both expansion and non-expansion states, suggesting that the ACA primarily produced a payer shift without overwhelming FQHC capacity.[87]

Part V: Non-Health Care Effects of the ACA – Budgets and Employment

Policy discussions around the ACA have not been restricted to the health care space. In particular, critics of the policy emphasized two non-health areas where the ACA could have negative impacts.

The first is budgetary effects on both the federal government and the states. At the federal level, the initial CBO budgetary estimates suggested that the ACA would, on net, lower the deficit by more than $100 billion over the first decade, and more than $1 trillion in the decade thereafter.[7] But this projection was highly uncertain and dependent on a number of factors that played out differently than CBO anticipated.

Several studies have assessed the impacts on the federal budget and have found them to be substantially different than the CBO anticipated. In particular, the costs of the exchange subsidies came in at well below CBO estimates initially,[88] and total federal spending in 2018 on premium tax credits, cost-sharing reductions and risk adjustment was less than half of what CBO had projected – in large part because overall Marketplace enrollment was substantially lower than originally predicted.[89,90]

More recently, however, actions by the Trump administration to weaken the law, including repeal of the individual mandate, may significantly worsen the risk pool in the exchanges.[32] Under the tax credit structure of the ACA, individuals pay a fixed percentage of their income for insurance, and the government pays the residual costs. As a result, these recent actions could significantly increase the federal budgetary costs of Marketplace subsidies, though if they reduce enrollment even more, the net effect compared to original estimates is unclear.

The Medicaid expansion has been sizeable, with federal Medicaid spending in expansion states growing 12% faster than in non-expansion states.[91] At the same time, overall Medicaid cost growth over the past decade has been much slower than predicted by actuaries at the Centers for Medicare and Medicaid Services (CMS), reflecting both lower costs of the Medicaid expansion as well as lower per-capita growth in spending for pre-ACA eligibles.[92]

Some state policymakers were also concerned with the increased state financial burden from their share of Medicaid expenditures. For newly-eligible expansion enrollees, costs were initially covered 100% by the Federal government; but, as Frean et al. (2016) emphasize, much of the rise in Medicaid rolls were individuals who were already eligible "coming out of the woodwork" – and doing so at a higher state fiscal share.[21] Despite this, Sommers and Gruber (2017) find that state spending projections for the Medicaid expansions were quite close in the aggregate, and there was no meaningful impact of the expansion on spending from state funds or on other categories of state spending such as education or transportation.[91]

The second area of focus has been on labor supply. There are a number of reasons why the ACA could lower labor supply. First, many individuals may have been working simply to obtain health insurance, and they might now leave the labor force now that community-rated and subsidized options were broadly available. This might operate particularly strongly for those now eligible for free expanded Medicaid coverage, although past studies of the impact of Medicaid on labor supply are decidedly mixed.[93,94] Second, the phase-out of the tax credits as a function of income placed an "implicit tax" on labor supply at potentially quite high rates that could lead individuals to reduce their labor supply.[95] Third, the employer mandate penalties in the law were tied to full time employment, providing an incentive for employers to shift employees to part time.

To date, however, there is no evidence of major impacts on labor supply. In studies of the dependent coverage provision, one analysis of survey data found a small reduction in work hours for young adults compared to slightly older adults but no effect on overall employment,[11] while another using tax data found no change in earnings.[96] Other studies find no impact of the Medicaid expansions on employment, hours worked, or wages among adults with low incomes or no college degree,[19,97,98] and one analysis considering both Medicaid and private coverage expansions also found no aggregate changes in labor supply.[99] There also has not been any evidence of a shift to part-time employment in response to the law,[100] and no increase in early retirement or part-time labor among adults in their 50s or early 60s.[101] The decision in some states not to expand Medicaid created an incentive for workers to earn more than 100% of FPL to become eligible for Marketplace tax credits (below 100% they are not eligible for tax credits or Medicaid); one study found this led to bunching in reported income among self-employed individuals just above the notch, though the study concludes that this is a reporting distortion only and not a true change in earnings.[102]

Part VI: Conclusion

The health economics community has responded robustly to the exciting opportunities for new analysis made available by the ACA. In the decade since the law was passed and the five years since it became fully effective, dozens of studies have emerged to explore and evaluate a wide variety of the law's impacts. These studies have covered a wide range of areas, and we have learned much.

One notable feature from our perspective is that this literature has been generally empirically sophisticated, recognizing the challenges in causally estimating the impact of

policies on outcomes. Most of the studies reviewed here have not relied on simple time series or cross-sectional comparisons but have used more sophisticated quasi-experimental approaches, with a variety of plausible control groups whenever possible. The studies of the Medicaid expansions have been particularly convincing in this context, attributable to both the natural control group created by the state-level variation in expansion decisions, and the generally robust analysis of pre-ACA trends and multiple other specification checks in most of the papers cited here.

More good news is that we have learned an enormous amount in just a short period. The evidence reviewed here clearly demonstrates that the ACA led to major increases in insurance coverage, with strong evidence of coverage increases from the young adult coverage provision, the Medicaid expansion, and premium tax credits. The impacts of the exchanges themselves, individual insurance market regulations, and the individual mandate are still unclear, in part due to the lack of an obvious control group for these policies – though with the recent repeal of the individual mandate and several states stepping in with their own mandate, we may soon have a much clearer sense of the impact of this particular policy. There is also clear evidence of an increase in access to and use of a variety of types of health care.

Equally importantly, we have learned that some of the major concerns with the law have not come to pass. There has been no evidence of widespread deterioration in access to health care providers, a significant deterrent to labor supply, or major budgetary pressures on state governments from the Medicaid expansion thus far.

That said, not all is rosy in this area of research. We still have not reached consensus on a number of critical questions facing this literature. While our assessment is that several strong studies have indicated positive impacts on outcomes including self-reported health, surgical

emergencies, prenatal care, and mortality among high-risk patients with chronic conditions, we recognize that this is not a universally-held view. Further studies on a wide variety of health outcomes are needed – in particular over the longer run, when health effects might be easier to observe; already, some of the early studies showing non-significant changes in health have become significant with additional years of follow-up.[103,104] While one major goal of the ACA was to provide financial protection, the public perception of the value of health insurance expansion is not simply limited to the traditional economic view of insurance as a tool for risk management. Rather, policymakers and the general public have great interest in understanding the law's impacts on health outcomes, so continued study in this area is critical.

Moreover, these issues have substantial policy implications. Disentangling which aspects of the ACA have the largest impacts will be critical as policymakers consider both selective restrictions and expansions of the law's provisions. The effect of the individual mandate repeal and potential barriers to coverage such as Medicaid work requirements have been the focus of recent political discussions, while early forays into health policy among Democratic presidential contenders often focus on making exchange plans more affordable. Understanding the effects not just of having *any* health insurance but the particular *type* of coverage also has important implications for health care quality, costs, and patient outcomes. A better understanding of coverage heterogeneity is particularly critical as state and federal policymakers propose a wide range of solutions, such as a public option on the insurance marketplace, moving more Medicaid beneficiaries to private coverage, and – most dramatically – "Medicare-for-All" in various configurations. Ongoing studies of these issues are warranted to continue to inform changes to the ACA and the U.S.'s health insurance system more broadly in the coming years.

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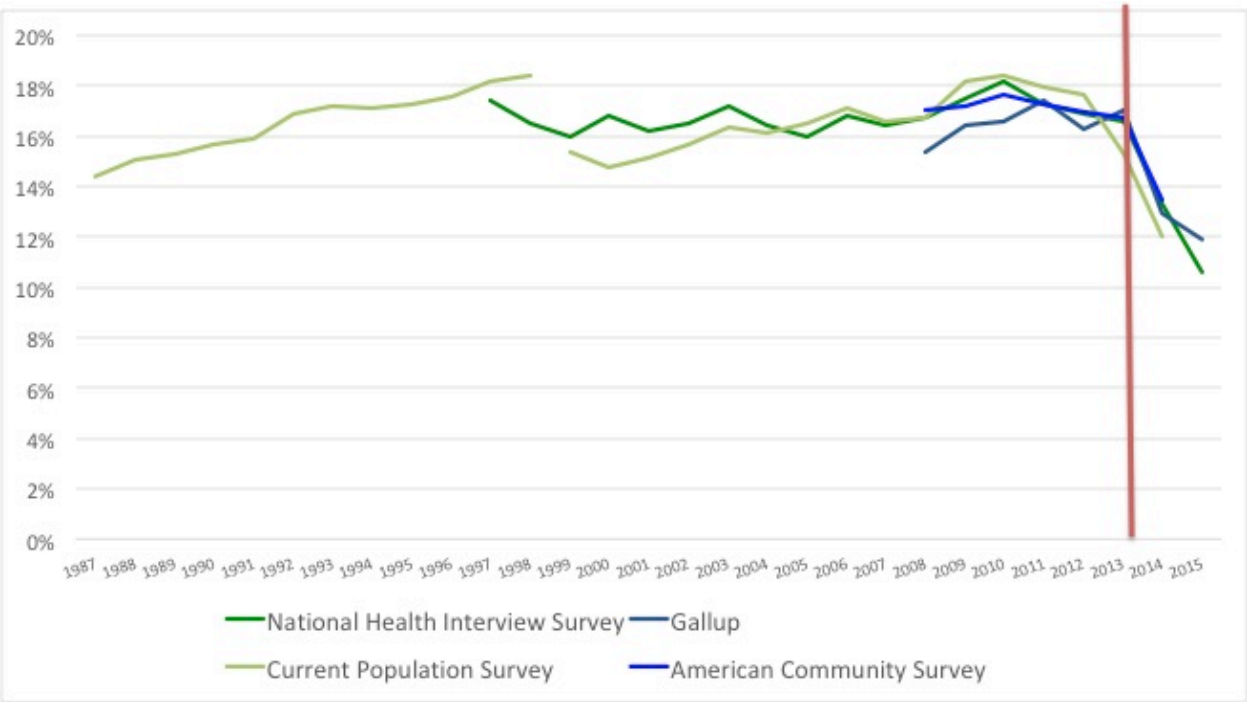
Figure 1: Percentage of Non-Elderly Residents without Health Insurance, 1987-2015



Notes: Datapoints are nationally-weighted estimates for the percentage of U.S. residents ages 0-64 without health insurance; Gallup datapoints are limited to adults 18-64, since that dataset does not include children.

Table 1: Key Findings on the Coverage Effects of the Affordable Care Act

Outcomes	Findings	Studies
Coverage for Young Adults (19-25)	• 2 to 3 million more young adults covered via their parents' plans, compared to slightly older control group *(DCP)* • Gains largest among men, unmarried adults, and whites *(DCP)*	Antwi et al. (2013),[11] O'Hara & Brault (2013),[105] Schwartz & Sommers (2012),[12] Sommers et al. (2013)[13]
Marketplace Coverage	• 12.2 million enrolled in Marketplace coverage during the 2017 open enrollment period *(TS)* • State Marketplaces nearly double the coverage effect (holding subsidies constant) as federal Marketplace *(DDD)* • Suggestive evidence for positive impact of advertising efforts and navigators *(CS)* • Published studies show modest or no impact of individual mandate penalty details, but some evidence of a "taste for compliance" inducing Marketplace enrollment *(RDD, DDD)* • Premium growth clustered in areas with monopoly insurers on the Marketplace *(CS)*	CMS (2017),[106] Frean et al. (2017),[21] Heim et al. (2018),[35] Karaca-Mandic et al. (2017),[28] Parys (2018),[31] Saltzman (2019),[33] Sommers et al. (2015),[29] Vargas (2016)[30]
Medicaid Coverage	• Net enrollment increase of 14.0 million in Medicaid expansion states and 2.4 million in non-expansion states by 2017 *(TS)* • Difference-in-difference analyses of Medicaid expansion indicate uninsured rate decreased by 3 to 21 percentage points, depending on state and data source *(ME, DDD)* • Enrollment increases largest among childless adults *(ME)* • 'Woodwork effect' induced greater enrollment among children - estimates ranging from 700,000-1.4 million *(ME, DDD)*	CMS (2017),[17] Courtemanche et al. (2016),[18] Frean et al. (2017),[21] Kaestner et al. (2017),[19] Kenney et al. (2016),[23] Miller & Wherry (2017),[49] Sommers et al. (2017),[48] Ugwi et al. (2019)[24]
Employer Sponsored Coverage (ESI)	• Stable offer rates and overall ESI coverage, with no substantial crowd-out by Marketplace or Medicaid *(TS, ME, DDD)* • Slight increases in ESI noted in many states since 2014 *(TS)*	Abraham et al. (2016),[39] Blavin et al. (2015),[107] Frean et al. (2017),[21] Sommers et al. (2018)[40]
Overall Uninsured Rate	• Federal government reports a reduction in the uninsured population from 50 million pre-ACA to 30 million by 2016 *(TS)* • Survey-based analyses indicate largest gains in coverage for those living in Medicaid expansion states *(TS, ME, DDD)* • Disparities in coverage rates by race and income narrowed substantially after Medicaid expansion (TS, ME, DDD) • Mixed evidence on whether uninsured rate has begun to increase again in 2017-2018 *(TS)*	Buchmueller et al. (2016),[26] Collins et al. (2018),[8] Courtemanche et al. (2016),[18] Courtemanche et al. (2019),[25] Martinez et al. (2018),[5] Sommers et al. (2018),[9] Uberoi et al. (2016)[14]

Notes: Study findings relate to the following policies and the following study designs:
CS = Cross-sectional analysis, using multivariate adjustment

DCP = Dependent Coverage Provision, using D-in-D comparison to slightly older adults, unless otherwise noted
DDD = Triple Difference of ACA policies, by state, year, and income group or pre-ACA county-level uninsured rate
ME = Medicaid expansion, using D-in-D comparison between expansion and non-expansion states, unless otherwise noted
RDD = Regression Discontinuity Design
TS = Time Series, no comparison group

Table 2: Key Findings on Utilization and Health Effects of the Affordable Care Act

Outcomes	Findings	Studies
Access to and affordability of care	• Reductions in cost-related delays in care and out-of-pocket health care costs *(DCP, ME)* • Increased share of population with a personal physician or regular location of other than the Emergency Department *(DCP, ME)* • Reduced risk of financial distress, including short-term loans and home payment delinquency *(DCP, ME, RDD of Premium Subsidies)*	Allen et al. (2017),[108] Chua & Sommers (2014),[64] Gallagher et al. (2018),[109] McMorrow et al. (2017),[70] Miller & Wherry (2017),[49] Simon et al. (2017),[44] Sommers et al. (2017)[48]
Preventive Care and Outpatient Utilization	• More utilization of some preventive care services including wellness exams, HIV tests, mammograms, cholesterol testing, and screening for diabetes, though results vary by service and study *(ME, DDD)* • Increases in outpatient utilization and prescription drug use among Marketplace and Medicaid enrollees *(ME, D-in-D for Marketplace vs. ESI)* • Mixed evidence on whether Medicaid expansion increased dental care *(ME)*	Courtemanche et al. (2019),[67] Goldman et al. (2018),[59] Ghosh et al. (2018),[47] Miller & Wherry (2017),[49] Nasseh & Vujicic (2017),[50] Simon et al. (2017),[44] Sommers et al. (2017)[48]
Emergency & Hospital Care	• Young adult private coverage expansion led to a reduction in ED utilization, particularly weekday non-urgent visits *(DCP)* • Studies on Medicaid expansion have been mixed, with some showing less ED use and others no change, in contrast to sharp increases in Oregon Experiment *(ME)* • No significant change in overall hospital utilization (*ME)*	Admon et al. (2019),[57] Antwi et al. (2015),[54] Klein et al. (2017),[55] Sommers et al. (2017),[48] Taubman et al. (2014)[53]
Chronic Disease Care	• Increased use of medications, with one study showing the largest increases for chronic conditions such as diabetes and cardiovascular disease, as well as contraception *(ME)* • Increased rates of diagnoses of some chronic conditions *(ME, D-in-D for Marketplace vs. ESI)* and in regular care for chronic conditions *(ME)* • No change in quality for hospitalized patients with cardiac disease *(ME)* • Increase in Medicaid as source of payment for treatment for substance use disorder, with possible increase in specialty treatment admissions chronic *(ME)* • Improved care for patients with end-stage renal disease *(ME)*	Ghosh et al. (2018),[47] Goldman et al. (2018),[59] Maclean & Saloner (2019)[58] Sommers et al. (2017),[48] Swaminathan et al. (2018),[76] Wadhera et al. (2018),[110] Wherry & Miller (2016)[60]
Surgical Care	• Better care for acute appendicitis [fewer perforations] for young adults *(DCP)* • Better surgical care and surgery outcomes after Medicaid expansion *(ME)*	Scott et al. (2016)[71], Loehrer et al. (2018)[72]
Maternal Health Outcomes	• Earlier prenatal care and better maternal outcomes for young women after private insurance expansion, especially among unmarried women *(DCP)* • No change in overall rates of low birthweight or pre-term birth after Medicaid expansion, but a narrowing of black-white disparities *(ME)*	Brown et al. (2019),[73] Daw & Sommers (2018)[46]
Self-Reported Health and Well-Being	• Improved quality of life and overall well-being with reduced psychological distress after state Medicaid expansions *(ME)* • Studies of young adult coverage expansion show improved self-reported health *(DCP)* • Medicaid analyses show mixed results regarding self-rated	Barbaresco et al. (2015),[65] Chua & Sommers (2014),[64] Courtemanche et al. (2018),[103] Flavin et al. (2018),[69] McMorrow et al. (2017),[70]

	health, with some showing improvement and others no effect *(ME)*, and another study showing improved self-reported health related to the ACA's private coverage expansion *(DDD)*	Miller & Wherry (2017),[49] Simon et al. (2017),[44] Sommers et al. (2017),[48] Wallace & Sommers (2014),[63] Winkelman et al. (2018)[66]
Mortality	• Young adult provision led to reduced disease-related mortality among young adults *(DCP)* • No change in hospital mortality for patients with cardiac disease *(ME)* • Medicaid expansion led to significant mortality reduction among high-risk patients starting dialysis *(ME)* • Simulation modeling suggests population-based studies of mortality may be underpowered detect ACA effects *(Simulation-based analysis of Medicaid expansion)*	Black et al. (2019),[74] McClellan (2017),[77] Swaminathan et al. (2018),[76] Wadhera et al. (2018)[110]

Notes: Study findings relate to the following policies and the following study designs:
CS = Cross-sectional analysis, using multivariate adjustment
DCP = Dependent Coverage Provision, using D-in-D comparison to slightly older adults, unless otherwise noted
DDD = Triple Difference of ACA policies, by state, year, and income group or pre-ACA county-level uninsured rate
ME = Medicaid expansion, using D-in-D comparison between expansion and non-expansion states, unless otherwise noted
RDD = Regression Discontinuity Design
TS = Time Series, no comparison group

Table 3: Key Findings on Effects of the Affordable Care Act on Health Care Providers

Providers	Findings	Studies
Hospitals	• Medicaid expansion led to a 50% decline in uninsured hospital stays and a 30% decline in hospital uncompensated care *(ME)* • Reductions in uncompensated care were partially offset by increased hospital payment shortfalls due to Medicaid *(ME)* • Evidence suggests excess margins and operating margins in expansion state hospitals improved as well *(ME)*	Blavin (2016),[81] Nikpay et al. (2016),[80] Young et al. (2019)[82]
Outpatient Physicians	• Appointment availability for physicians accepting Medicaid patients increased in 2013-2014 after implementation of the ACA's enhanced Medicaid payment rate for primary care *(TS based on size of state reimbursement increase in Medicaid)* • Mixed evidence on the impact of expanded coverage on overall provider availability – one study showed an increase in wait times for appointments, while others have shown unchanged or increased availability of appointments after expansion *(ME, TS)*	Miller & Wherry (2017),[49] Neprash et al. (2018),[85] Polsky et al. (2015),[86] Tipirneni et al. (2015)[84]
Federally-Qualified Health Centers	• Medicaid expansion led to substantially larger effects on coverage among community health center patients than in the population as a whole, with a 12 percentage-point increase in Medicaid and 11 point decreased in the uninsured rate *(ME)* • Total volume of community health center patients seen increased similarly in both expansion and non-expansion states *(ME)*	Cole et al. (2017)[87]

Notes: Study findings relate to the following policies and the following study designs:
ME = Medicaid expansion, using D-in-D comparison between expansion and non-expansion states, unless otherwise noted
TS = Time Series, no comparison group

Table 4: Key Findings on Non-Health Care Effects of the Affordable Care Act – Employment and Budgetary Impacts

Outcomes	Findings	Studies
Federal Budget Effects	• Total federal spending in 2018 on premium tax credits, cost-sharing reductions, and risk adjustment was $55 billion, less than half what CBO had projected ($129 billion) in 2012 for 2018 spending *(TS vs. projections)* • Federal spending in Medicaid expansion states outgrew federal spending in non-expansion states by 12.2% through mid-2015 *(ME)* • Medicaid spending growth has been substantially lower (approximately 30% by 2019) than predicted by actuaries at the Centers for Medicare and Medicaid Services *(TS vs. projections)* • Taking into account the law's revenue provisions, CBO projected in 2015 that a full repeal of the ACA would increase the federal deficit by $137 billion over a decade, largely consistent with pre-ACA projections *(TS vs. projections)*	Congressional Budget Office (2012)[89] (2015)[111] and (2018),[90] Glied & Tavenner (2019),[92] Gruber (2011),[112] Sommers & Gruber (2017)[91]
State Budget Effects	• Difference-in-difference assessment of state budgetary impact of Medicaid expansion showed no significant change in state spending fiscal year 2015 and no crowd-out of other state spending priorities (*ME)* • State spending projections for Medicaid expansion were reasonably accurate in the aggregate (ranging from 0.8 to 2.9% for total, state, and Medicaid spending), though individual state's error rates varied widely (-26% to 46%) *(TS)* • Descriptive analyses of individual state budgets show various offsets of Medicaid expansion to state budgets, in some cases covering the full cost of expansion to date[113] *(TS)*	Bachrach et al. (2016),[113] Sommers & Gruber (2017)[91]
Labor Supply	• One study found a modest reduction (3%) in work hours for young adults after implementation of the 2010 dependent coverage provision, but that study and others have not found any change in overall employment rates or earned income *(DCP)* • ACA implementation was not associated with any significant changes after 2014 in part-versus full-time employment or rates of job switching *(TS, ME)* • Studies of Medicaid expansion among adults with low incomes or no college education showed no significant changes in employment, hours worked, or wages *(ME)* • Overall ACA coverage expansion – both Medicaid plus exchanges – was not associated with aggregate employment changes, though potentially with some offsetting heterogeneous effects by region (DDD) • No changes in rates of early retirement or part-time work among near-elderly adults after 2014, or between Medicaid expansion vs. non-expansion states (TS, ME)	Antwi et al. (2013),[11] Duggan et al. (2017),[99] Gooptu et al. (2016),[97] Heim et al. (2015),[96] Kaestner et al. (2017),[19] Levy et al. (2018),[101] Leung & Mas (2018),[98] Moriya et al. (2016)[100]

Notes: Study findings relate to the following policies and the following study designs:
DCP = Dependent Coverage Provision, using D-in-D comparison to slightly older adults, unless otherwise noted
DDD = Triple Difference of ACA policies, by state, year, and income group or pre-ACA county-level uninsured rate
ME = Medicaid expansion, using D-in-D comparison between expansion and non-expansion states, unless otherwise noted
TS = Time Series, no comparison group