The Affordable Care Act and the New Economics of Part-Time Work

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Abstract

The Affordable Care Act (ACA) imposes several types of incentives that will affect work schedules. The largest of them are (1) an explicit penalty on employers who do not offer coverage to their full-time employees; (2) an implicit tax on full-time employment, stemming from the fact that full-time employees at employers that offer affordable coverage are ineligible to receive subsidies on the law’s new health insurance exchanges; and (3) an implicit tax on earnings, stemming from the provisions of the law that give lower subsidies to those with higher incomes. The labor market will likely adjust to the various new costs by reducing weekly employment per person by about 3%. The tax incentives will push some workers to work more hours per week (for the weeks that they are on a payroll), and others to work fewer. According to the model presented in this paper, the ACA’s incentives and ultimately its behavioral effects will vary substantially across groups, with the elderly experiencing hardly any new incentives and female workers being most likely to cut their work schedules to 29 hours per week.

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Starting in 2014, millions of workers face new implicit federal taxes on their weekly work hours, in addition to longstanding taxes on their earnings and payroll. This implicit tax increase is due to new Affordable Care Act (ACA) tax credits that are withheld from full-time employees who are offered affordable health coverage by their employers. By 2016, even more workers will be penalized for working full time, because their employers will owe penalties based on the number of full-time employees on the payroll. Also, a number of workers will face new implicit taxes on their incomes, because the ACA gives lower health care subsidies to people with higher incomes. The consequences of the ACA's new taxes are startling. Almost half of the working population will be directly affected by at least one of the new incentives, not to mention the indirect effects on others as the labor market adjusts.

This paper assesses the magnitude and economic characteristics of the implicit and explicit taxes created by the new programs. It also offers predictions for the magnitude, incidence, and direction of their effects on weekly work schedules. This paper explains that the likely labor-market adjustments to the new costs will primarily be reduced employment—about 3% on average based on the model and assumptions presented here. The new taxes will push some workers to work more hours per week (for the weeks that they are on a payroll), and others to work fewer, with an average effect on hours per employee on a payroll that tends to be small and can be in either direction, depending on the group of workers considered. The ACA's new taxes and ultimately their behavioral effects will vary substantially across groups, with the elderly experiencing hardly any new incentives.

From an aggregate point of view, the employer penalties by themselves are historically significant, but nonetheless their effects on work schedules and employment are matched, if not exceeded, by the ACA's implicit-tax provisions. The results of this study also incorporate the fact that in addition to the ACA a variety of longstanding tax and subsidy rules affect work incentives (in both directions) and that many people will not participate in programs for which they are eligible.[1]

Section I explains how the ACA contains hidden taxes on work schedules, and quantifies the amount of the new incentives. Section II explains some of the ways that the labor market could react. Section III explains the key aspects of the behavior of people in the labor market that will affect the consequences of the new incentives, and draws on historical studies of the labor market and work schedules to make realistic projections about that behavior. Section IV displays the labor market projections, and section V concludes.

I. Distorting the Workweek

A. Relevant ACA Provisions

Three major provisions of the ACA introduce incentives to change the workweek. The most obvious is the explicit penalty on assessable large employers that do not offer health insurance to their full-time employees.[2] Full-time employees are defined by the ACA to be employees working at least 30 hours per week.[3] The amount of the penalty is $2,000 per full-time employee

[1] The income- and payroll-tax exclusions of premiums paid for employer-sponsored health insurance are among the many longstanding policies affecting the incentives to work.

[2] An assessable large employer has at least 50 full-time-equivalent employees during the average month of the prior calendar year. An assessable employer may not owe a penalty because, among other things, it has fewer than 30 full-time employees (not counting part-time employees) during the penalty year. See section 4980H(c)(2) of the Internal Revenue Code, as amended by the ACA.

[3] Salaried workers may have a threshold of four days, rather than 30 hours, per week. The final rule issued by the US Treasury states, "For employees paid on a non-hourly basis (such as salaried employees), an employer may calculate

on the payroll during each month, adjusted for health cost inflation after 2014.[4] Naturally, a penalty on full-time employment can be expected to lead to less full-time employment.

The second provision changing workweek incentives is the ACA provision that full-time employees and their families cannot receive subsidized health coverage on the ACA's health insurance exchanges (hereafter, "exchange subsidies") unless their employer fails to offer affordable coverage.[5] In other words, employees of an employer that offers insurance coverage will only receive a government subsidy if they work part time or spend time off the payroll entirely.[6] This is, in effect, an implicit tax on full-time employment.[7] The forgone subsidies include cost-sharing assistance—federal dollars that reduce a family's health insurance deductibles and copayments—as well as premium assistance administered through the federal personal-income tax. Altogether, these subsidies can easily be worth more than $10,000 per year.

This second provision, the implicit tax on full-time employment, is similar in character to the first provision, the employer penalty, because both are likely to reduce the employee's net benefit from working a full-time job as opposed to a part-time job, or not working at all. With the second provision, the government avoids having to pay subsidies for full-time employees at employer-sponsored insurance (ESI) employers because those employees are ineligible for exchange subsidies. With the penalty on non-ESI employers, the government may not avoid paying subsidies but, in effect, it claims them back by penalizing the employers. However, the

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the actual hours of service using the same method as for hourly employees, or use a days-worked equivalency crediting the employee with eight hours of service for each day for which the employee would be required to be credited with at least one hour of service. . . . The proposed regulations prohibit use of these equivalencies, however, in circumstances in which their use would result in a substantial understatement of an employee's hours of service. . . ." (United States Department of the Treasury 2014, pp. 22–23).

[4] The penalty will not be enforced during 2014 and will be partially enforced in 2015.

[5] The exchanges are also known as "health insurance marketplaces."

[6] The only exceptions are the increasingly rare cases where part-time positions are eligible for employer health coverage.

[7] The incentives can be more complicated for dual-earner couples; see my discussion below of the ACA's "family glitch."

implicit tax may be more important from an aggregate point of view, because the value of the subsidies that the worker can lose by working full time may be greater than the amount of the penalty that the employer can receive for employing him.

The third major ACA provision affecting workweek incentives is the provision that gives lower subsidies to families with higher incomes. This provision applies to any household head or spouse that has a family member (or him- or herself) receiving exchange subsidies some time during the calendar year. In other words, a household participating in the exchanges will find that earning additional income will not only add to its federal and state income-tax liabilities, but will also decrease the subsidy it receives for its health insurance. Like any additional marginal-earnings tax, this implicit tax can reduce hours worked.[8]

However, this paper's estimates of the effects of the ACA on hours worked per week are probably conservative, for two major reasons. First, employers that do offer health coverage to their employees can still be penalized as a result of the ACA. For each employee who receives exchange subsidies—and for whom the employer's coverage is not affordable[9]—the employer owes $3,000 (plus health cost inflation after 2014) per year.[10] The $3,000 penalty is another tax on employment created by the ACA, but I do not yet have an estimate of its effects on the total amount of employment.

[8] The subsidy phaseout that causes this implicit income tax is separate from, and has little to do with, the aforementioned implicit tax on full-time work. To see this, suppose that any person not offered health insurance by an employer would be eligible for a $5,000 subsidy, regardless of household income. By assumption, this hypothetical subsidy has no phaseout and creates no marginal-earnings tax because income is irrelevant for determining the subsidy amount. Nevertheless, the $5,000 is an implicit tax on full-time work for someone working for an employer that offers health insurance only to its full-time employees, because a decision to move to part-time work would make the person eligible for the $5,000.

[9] "Not affordable" means that employee premiums for self-only coverage exceed 9.5% of the employee's household income.

[10] This employer penalty is capped at $2,000 (plus health cost inflation after 2014) times the total number of full-time employees, including those full-time employees that do not receive subsidized coverage. The cap calculation even includes the first 30 full-time employees.

A second reason that this paper's estimates are likely conservative is the longstanding excise tax on employer health plans that are not compliant with federal rules. This is, in effect, a second possible penalty on employers who offer coverage. The amount of the penalty is $100 per day per person affected if the federal government determines that the employer intended to violate the rules. The excise tax is not new, but avoiding it is more complicated because of the ACA's new restrictions on employer health plan characteristics. While it may turn out that few employers will pay the excise tax, employers are already spending resources on consultants, attorneys, and accountants, and thereby distorting their benefit offerings in order to make sure that they are not liable to pay the excise tax (Troy and Wilson 2014). The compliance costs created by the ACA are another hidden tax on employment, but I have not yet been able to quantify their economic significance separate from the ACA's monetary employer penalties.

Finally, it bears mentioning that the longstanding exclusion of ESI premiums from payroll and personal-income taxes is itself an instance of a subsidy for full-time employment that includes health care insurance. That is, full-time workers can use the exclusion to avoid taxes but non-workers and uncovered part-time employees cannot. This exclusion is relevant for understanding coverage decisions under the ACA,[11] for measuring the combined total of ACA and non-ACA incentives (see subsection B below), and for comparing actual full-time work incentives with the incentives that would be present in a hypothetical world without taxes. But the hypothetical no-tax world is not of central interest in this paper. My purpose is to compare the labor market as it will be with the ACA to how the labor market would evolve without the ACA—and to calculate the impact of the ACA as the difference between the two. In both of those cases, ESI premiums are excluded from payroll and personal-income taxation.

[11] See Rennane and Steuerle (2011) and Gallen and Mulligan (2013).

Therefore, this exclusion is not relevant for understanding the impact of the ACA on the incentives to work full time. In other words, because the ACA is not creating or eliminating the ESI tax exclusion, it is not a significant part of the ACA's contribution to overall incentives to work full time.[12]

B. Magnitudes of the 29er Distortion: An Example

The term "29er" refers to someone who works at or just below 29 hours per week. That is the most that an hourly employee can work without being categorized as a full-time employee under the Affordable Care Act. The following example illustrates how a worker who moves from full-time employment to 29er part-time employment can reap generous new government assistance with health premiums and out-of-pocket expenses. This assistance can offset much of the income lost due to reduced work hours.

Consider a hypothetical person who is deciding between a part-time position and a full-time position with a given employer. The full-time position, shown in the left column of table 1, requires 40 hours of work and $100 of employment expenses (such as commuting and child care) per week. The part-time position requires 29 hours of work and $75 in employment expenses per week. (For the employer, each of the positions costs $26 per hour worked, including employer payroll taxes and employer contributions for health insurance, if any.)

[12] This is a basic implication of marginal analysis that has been confirmed with empirical research. In theory, there were employees before the ACA who were on the margin between ESI and other types of coverage (including no coverage), despite the fact that ESI has tax advantages. Even a small subsidy to the other types of coverage would move a few employees off of ESI, despite the fact that the small subsidy is less than the dollar value of ESI's tax advantage, because even without the subsidy the value of the tax advantage was offset (from the point of view of the employees on the margin) by other costs of ESI or benefits of other coverage. The empirical studies reviewed in Congressional Budget Office (2007) confirm that marginal changes in the relative price of ESI affect behavior even though ESI enjoys a net tax advantage.

Table 1. The Affordable Care Act's Implicit Tax on Full-Time Work: An Example

Job attributes	Full-time position	Part-time position	
Health insurance source	employer-sponsored insurance (ESI)	Affordable Care Act exchange	
Employee costs			
weekly hours worked	40	29	(1)
weekly work expense	$100	$75	(2)
Employer costs			
hourly cost	$26	$26	(3)
annual cost	$52,000	$37,700	(4) = 50 × (3) × (1)
employer payroll taxes	$2,679	$2,679	(5) = [(4) − (6) − (7)] × 0.0765/1.0765
Health insurance premiums			
employer	$11,154	$0	(6) = 78% of total premium (ESI only)
employee, excluded from tax base	$3,146	$0	(7) = 22% of total premium (ESI only)
employee, included in tax base	$0	$1,379	(8) = 3.9% of (12)
ACA	$0	$10,731	(9) = 70% of total health expenses − (8)
Out-of-pocket health expenses			
employee	$3,000	$1,038	(10) = 17% (6%) of total ESI (exch.) expenses
ACA	$0	$4,152	(11) = (3/7) × [(8) + (9)] − (10)
Employee income subject to tax			
total	$35,021	$35,021	(12) = (4) − (5) − (6) − (7)
ratio to federal poverty line	1.47	1.47	(13) = (12)/23850
after health & work expenses, annual	$27,021	$28,854	(14) = (12) − (8) − (10) − 50 × (2)

Notes: Positions were offered in 2016 by employers offering health insurance only to full-time employees. All dollar amounts are annualized 2014 dollars unless otherwise noted. Subsidies are calculated for a family of four with one earner. Both types of employees work 50 weeks per year—see rows 4 and 14. The Affordable Care Act exchange plan is assumed to be a silver plan (70% actuarial value). Neither employee type is subject to the employer penalty.

The full-time position includes affordable employer-sponsored health insurance, which means that if our potential employee takes that position, he will not be eligible to receive assistance from the ACA for premiums or for out-of-pocket health expenses. The employer will pay 78% of the premiums for the family insurance plan directly, and withhold the remaining premiums of $3,146 from the paychecks of participating full-time employees.[13] In the full-time

[13] The percentage itself does not affect any of the table's rows other than 6 and 7. The 78% was chosen to represent an overall average of a heterogeneous reality in which the percentage paid by employer varies by employer, year,

position, the employee's income subject to tax would be $35,021, which excludes employer payroll taxes (7.65% of the $35,021), employer health insurance contributions, and employee premiums withheld.[14]

In this example, the part-time position offers less gross compensation—$37,700 as opposed to $52,000 for the full-time position—because it involves working fewer hours. But the part-time employees are not eligible for ESI and the tax exclusions that go with it, which makes their income subject to tax equal to their total compensation minus employer payroll taxes—again, $35,021. (I have made income subject to tax the same for the full-time and part-time positions in this example for the sake of simplicity; more on this below.)

The part-time position would make the employee eligible for subsidized health plans from the ACA's exchanges because the employee would not be offered affordable health insurance by the employer. I assume that the second cheapest silver plan on each state exchange—which is the benchmark to which the subsidies will be pegged—will have the same expected covered medical expenses as the employer plan: namely, $17,300 per year including out-of-pocket payments for the covered expenses that are not reimbursed by the plan due to deductibles, copayments, etc. By definition, a silver plan's full premium finances 70% of expenses, and is therefore $12,110 per year. However, because the employee has a family income subject to tax of 147% of the federal poverty line (the employee is the sole earner in a family of four), the ACA caps premiums for the second cheapest silver plan at 3.9% of their income subject to tax, or $1,379 per year. The other $10,731 is paid by the US Treasury to the insurer pursuant to the ACA.

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type of plan, type of employee, and other factors. On average, employers paid 72% for family coverage and 82% for single coverage in 2012 (Henry J. Kaiser Foundation and Health Research & Educational Trust 2012).

[14] Because employer payroll taxes are excluded from the payroll base to which the 7.65% payroll tax rate is applied, the employer payroll tax amount can equivalently be calculated as in row 5 of table 1: (employer cost minus ESI premiums) times a factor of 0.0765/1.0765.

By design, the silver health plans have lower premiums and greater out-of-pocket costs (deductibles, copayments, etc.) than the typical employer plan. That design feature is visible in table 1: exchange plan out-of-pocket costs total $5,190 rather than the $3,000 of out-of-pocket health expenses associated with ESI.[15] However, because the employee's family is at 147% of the poverty line, the employee gets an 80% discount on the out-of-pocket expenses, with the remainder paid by the US Treasury to the insurer pursuant to the ACA.[16]

After health and work expenses, our potential employee would make $27,021 per year in the full-time position, but $28,854 in the part-time position![17]

This example illustrates an important conclusion about the ACA and part-time work: moving from full-time employment to part-time employment can trigger generous new assistance with health premiums and out-of-pocket expenses that can offset much of the income lost due to reduced work hours. Therefore, workers and employers should not be expected to continue making the same work-schedule decisions under the ACA that they did before the ACA. Withholding assistance from full-time employees amounts to a tax on full-time employment and will of course affect decisions about full-time employment. This general conclusion does not depend on the quantitative details in this example, like the hourly wage rate or the assumed health costs. It holds true as long as the employer is not offering affordable coverage to part-time workers, the worker is from a family with income between 100% and

[15] In other words, the employer plan finances the $17,300 of covered expenses with premiums of $14,300 and out-of-pocket charges of $3,000 (Gabel et al. 2012), whereas a silver plan without subsidies finances it with premiums of $12,110 and out-of-pocket charges of $5,190.

[16] In other words, the silver plan with cost-sharing subsidies limits average out-of-pocket charges for a family that is at 147% of the poverty line to 6% of the average total expenses of $17,300. The cost-sharing subsidy that achieves this limit is shown in table 1's row 11: $4,152. The cost-sharing subsidy is administered by compensating insurers for setting lower deductibles, copayments, etc., specifically for the eligible members of their silver plans.

[17] Table 1 does not show the employee payroll and personal-income taxes, but those would be the same for the full-time and part-time employee because the amount of the income subject to the two taxes is, in this example, independent of full-time status.

400% of the federal poverty line (FPL), and the worker cannot be covered through a spouse's employer (Mulligan 2014). (Table 1's example is a bit simplified in that part-time employees have the same income subject to tax and the same hourly employer cost as full-time employees. That does not happen in all cases, and is incorporated in the example only to illustrate general conclusions without making the calculations excessively complicated.)

Indeed, under the ACA, for millions of workers (although by no means all American workers), a part-time schedule can yield *more* disposable income than a full-time schedule (Mulligan 2014). This dramatic result derives primarily from the size of the combined subsidy gained (the difference between left and right columns in rows 9 and 11) as compared to the earnings lost (the difference between the left and right columns in row 4) as a result of cutting hours to part time. The workers for which the former exceed the latter will tend to be those who have a usual weekly work schedule (before the ACA) that is in the 30–40-hour range, and hourly wage rates that are less than average. Such workers lose less earnings by cutting their schedules to 29 hours than do workers with high wage rates or with usual schedules of more than 40 hours. These workers also tend to have high health insurance premiums due to the size or age of their families.[18]

C. The Prevalence and Magnitude of the ACA's New Taxes

The ACA has a number of transitional features that complicate assessment of its economic effects. The original 2010 legislation delayed implementation of its main features, including the

[18] The hourly wage of the worker featured in table 1 is close to the median among non-elderly household heads and spouses who are ineligible for exchange subsidies solely because they are working full time for an employer offering affordable coverage (Mulligan 2014). The health costs in table 1 are also in line with both employer-benefit surveys and with the Kaiser Foundation's premium calculator. Although common, the family situation in table 1 is not modal (that is, there are a few family situations that are even more common) because table 1's situation simultaneously has four people to insure and zero spousal income.

health insurance exchanges and the employer penalty. Some of the language in the law is vague and required a back-and-forth between regulators and the public before it was finally determined how the law would be enforced (Burkhauser, Lyons, and Simon 2011). In some instances, as with the employer penalty and the open enrollment period for exchange coverage, the administration has responded to political pressures by delaying implementation beyond what was specified in the original law. It will also take time for the private sector to fully comprehend and adapt to the new economic environment created by the law. In this paper, I only attempt to examine the consequences of the ACA as it will stand when it is essentially fully implemented under current law in the year 2016. I therefore measure the size of the tax incentives from the perspective of employers and employees in 2016. All these measures are made relative to a hypothetical world in 2016 in which (1) the ACA does not exist and (2) the hypothetical non-ACA policies coincide with the actual non-ACA policies that, as of 2014 in our real world, are slated to be in effect in 2016.[19]

Table 2 presents estimates of the number and composition of non-elderly household heads and spouses in 2016 who would work for an employer offering coverage (an ESI employer), assuming for the moment that neither employers nor employees will adjust the overall level of employment or its distribution between full-time and part-time work from today.[20] The total number of such people is 86.6 million, of which 46.9 million would be ineligible for exchange subsidies regardless of their employment situation because they are

[19] For example, the Emergency Unemployment Compensation program was terminated at the end of 2013 for reasons that appear to have nothing to do with the ACA. Thus, even without the ACA, the labor market would be evolving between 2013 and 2016; the ACA alters the path of the labor market relative to what it would have been.
[20] I use the March 2012 Current Population Survey, and project 2016 population totals by multiplying by a factor of 1.01^4. Unmarried partners of household heads are treated as heads of their own one-person household. Foster children are analyzed as children. Any other person not related to a household head or spouse is excluded from my sample.

from a family with income outside the interval in which subsidies are available: 100%–400% of the FPL.[21]

Table 2. Reasons for Employer-Sponsored Insurance (ESI) Employees' Ineligibility for Exchange Subsidies

	Worker counts (in millions)*		
	Full-time schedule	Part-time schedule	All schedules
All working, non-elderly household heads and spouses	80.9	33.2	114.1
Working for an ESI employer	63.8	22.8	86.6
minus family is outside 100–400% federal poverty line	35.0	11.9	46.9
minus spouse works full time for an ESI employer	4.5	2.3	6.8
Full-time employment by itself renders the worker (and family) ineligible for exchange subsidies	**24.2**	**8.7**	**32.9**

* Includes millions of non-elderly household heads and spouses only, projected to 2016.

Notes: Full- and part-time employment rates are held constant at 2011 values. An ESI employer is one offering coverage to its full-time employees. An ESI employee is anyone working for an ESI employer. National populations are based on the March 2012 Current Population Survey, excluding persons not working or without wage income in 2011. The survey's health insurance weights were multiplied by 1.01^4 in order to project to 2016. If part-time workers with ESI continue to be offered it under the Affordable Care Act, then their eligibility for exchange subsidies does not depend on full-time status. A full-time schedule is 35+ hours per week.

Exchange subsidies are also not available to persons who can obtain employer coverage through a spouse.[22] The ACA's exchange subsidies are not an implicit tax on such a person's employment status because, due to this so-called "family glitch," a person's entire family is ineligible for the subsidies even if the person leaves a job or moves to part-time work, as long as coverage is still available through the spouse. Table 2 therefore subtracts all 4.5 million married persons who (1) work for ESI employers, (2) live in a family between 100% and 400% of the FPL, and (3) have a spouse working full time for an ESI employer.

[21] Separate poverty lines apply to families in Alaska and Hawaii, but otherwise they are treated the same way in table 2. The federal poverty lines vary by family size and are adjusted for inflation.

[22] The family coverage offered by a spouse's employer does not even have to be affordable, as long as the spouse's employer offers affordable (by ACA definitions) self-only coverage to its employees. See also Burkhauser, Lyons and Simon (2011).

After these subtractions, 24.2 million full-time workers and 8.7 million part-time workers remain. For these 33 million workers, their entire family's eligibility for exchange subsidies hinges on their employment status. In any month that they are off the payroll, or working part time, they can get coverage on the ACA's exchanges and the subsidies that go with it. In any month that they are working full time for their employer, they are ineligible for exchange subsidies, regardless of how low their family income may be.[23] The population of potential workers facing the ACA's new implicit tax on full-time employment in 2013 is approximately 32.9 million. That is 20% of the potential workforce.[24]

The Congressional Budget Office (2014b) estimates that by 2016 about 25 million people will be enrolled in exchange plans during the average month of the year. Based on data from the Current Population Survey (CPS), I assume that about half of these—13 million, or about 9% of the workforce in that year—are household heads and spouses who work sometime during the calendar year, and the rest of the 25 million are either dependents or people who do not work.[25] Of the 9 million non-elderly household heads and spouses employed part time by employers offering coverage and not having opportunities for coverage through a family member (as shown on the bottom row of table 2), I assume that 64% will get exchange coverage, which means that about half of the 13 million working heads and spouses on the exchanges are already represented as part-time workers in table 2's bottom line.[26] The remainder of the 13 million, or about 5% of

[23] This ignores the full-time workers for ESI employers for whom coverage is not affordable in the sense that worker-only coverage is less than 9.5% of their family income. The number of these workers is likely small, unless employers significantly adjust the financing of ESI premiums (Burkhauser, Lyons, and Simon 2011), but in any case they are still subject to an effective full-time-employment tax in the form of an employer penalty that is 50% larger than the penalty on employers not offering affordable coverage.
[24] A "potential worker" is someone who would be working sometime during 2016 if the ACA had not become law.
[25] According to the March 2012 CPS, just over half of all non-elderly persons covered by private insurance were employed during 2011 and either a head of household or a spouse.
[26] The 64% take-up rate estimate is based on Mulligan's (2014, Appendix 4.1) analysis of insurance-coverage patterns of the unemployed, especially under a temporary federal program for assisting unemployed people with their health insurance premiums.

the potential workforce, are working for employers that do not offer coverage. These different groups face different combinations of the ACA's new incentives for full-time or part-time work.

As explained earlier, this paper examines the effects of three different work-schedule incentives created by the ACA. Those three incentives are (1) the explicit penalty for non-ESI employers who employ full-time workers; (2) the implicit tax on full-time employment for those people who work at ESI employers and could get government subsidies if they worked part time or spent time off the payroll; and (3) the implicit tax on income for people who get ACA exchange subsidies (because the subsidies are impacted negatively by their income).

Any given worker faces one of four possible combinations of these incentives, meaning that there are four different ACA "tax scenarios" for US workers. Table 3 lays out these tax scenarios as they relate to each of the incentives. The four scenarios are as follows:

A. ESI Worker with Forgone Subsidy When Working Full Time. Such workers face the implicit full-time-employment tax (incentive 2), because they could receive the subsidies if they changed to part time, or would lose their subsidies upon switching from part time to full time. (They meet all the other criteria for exchange subsidies.) However, their employer is providing health insurance, and so does not suffer the penalty (incentive 1). And the workers are not getting the subsidies, so they do not face the implicit income tax (incentive 3).
B. Non-ESI Worker with Subsidy. These are workers who are not receiving insurance from their employer, and are receiving a subsidy from the government. Their employer is suffering the penalty or the threat of a penalty (incentive 1),[27] and the employees are

[27] Small employers not offering coverage will not pay a penalty, but will pay an enormous penalty if and when they expand beyond 50 full-time equivalent employees.

faced with the implicit income tax (incentive 3), but the employees do not face the implicit full-time-employment tax (incentive 2).

C. Non-ESI Worker without Subsidy. These are workers who are not receiving insurance from their employer, but either are not eligible for the exchange subsidies at all or are not heads of households or spouses and so do not have their subsidies determined by their own work hours or income. Their employer does suffer the penalty for employing them without offering affordable coverage (incentive 1), but the employees do not face the implicit full-time-employment tax (incentive 2) or the implicit income tax (incentive 3).

D. No New Incentives. None of the three ACA incentives impact these people.

Table 3. Tax Scenarios Created by the Affordable Care Act Incentives

Incentives	Scenario A: ESI Worker with Forgone Subsidy When Working Full Time	Scenario B: Non-ESI Worker with Subsidy	Scenario C: Non-ESI Worker without Subsidy	Scenario D: No New Incentives
1. Penalty to Employer	No	Yes	Yes	No
2. Implicit Full-Time-Employment Tax	Yes	No	No	No
3. Implicit Income Tax	No*	Yes	No	No

* Unless employee spends part of the calendar year off the full-time payroll.

The first column of table 4 describes the share of the workforce that faces each of these scenarios. Each row of that table represents one of the tax scenarios created by the ACA. As derived in table 2, 20% of the potential workforce will be in scenario A, ESI Worker with Forgone Subsidy When Working Full Time. Scenario B, Non-ESI Worker with Subsidy, contains 5% of the potential workforce. Because a total of about 26% of workers are expected to be working for a non-ESI

employer,[28] that leaves 21% in scenario C, Non-ESI Worker without Subsidy. This 21% is therefore shown on the third row of table 4. That leaves 54% (100 − 20 − 5 − 21) of workers who are in scenario D. They do not face any of the ACA's major new disincentives to work or earn.

Table 4. Four Tax Scenarios Created by the Affordable Care Act (ACA)

Scenario*	Frequency	Marginal earnings tax rates		Weekly penalty on full-time work (hours per week), *p*
		non-ACA, *t*	ACA, *t*	
Scenario A: ESI Worker with Forgone Subsidy When Working Full Time	20%	25%	4%	5.5
Scenario B: Non-ESI Worker with Subsidy	5%	25%	21%	4.0
Scenario C: Non-ESI Worker without Subsidy	21%	25%	0%	4.0
Scenario D: No New Incentives	54%	25%	0%	0
Frequency-weighted average		**25%**	**2%**	**2.2**

* For definitions of the tax scenarios, see table 3 and the accompanying text.

Notes: Includes both implicit and explicit taxes for calendar year 2016. Categories are mutually exclusive. The marginal earnings tax rate includes pre-ACA payroll and personal income taxes at a 25% rate. "Receiving exchange subsidies" refers to heads of households or spouses receiving subsidies; dependents in such households are considered "not receiving" for the purpose of determining incentives. "Employer penalized" includes all employers not offering affordable coverage. *p* is measured in hours per week.

The remaining columns of table 4 show earnings and employment taxes in two different ways. Obviously, workers in scenario D (the table's fourth row) face just non-ACA taxes, with zeros entered for the two measures of ACA taxes. I take the non-ACA earnings tax rate to be t = 25% for all four tax scenarios.[29]

[28] By all estimates, a minority of employees work for an employer that does not offer coverage to any of its employees. The CBO estimates that, in 2008, these were 27% of all workers (Congressional Budget Office 2007). Using Census Bureau data, Janicki (2013) estimates 29% for 2010. Using the Medical Expenditure Panel Survey (MEPS), Carroll and Miller (2011) estimate 13% for 2011. I list 26% for the year 2016, assuming that the actual percentage in that year will be closer to the former two estimates than to the MEPS estimate, especially if at least a few employers drop their coverage due to the ACA.

[29] Non-ACA earnings taxes include personal-income taxes (state and federal) and employee payroll taxes. The 25% tax rate is approximately the sum of 7.65% for employee payroll taxes, 15% for federal individual income taxes (a typical rate for households below 400% of the poverty line: see Congressional Budget Office [2012]), and roughly

The third column of table 4 shows the ACA's contribution to the marginal tax rate on earnings from work (this is incentive 3, the implicit income tax), which I denote as τ. This is most relevant for families that are subsidized throughout the calendar year, in which case τ = 21%.[30] τ is only 4% for a Full-Time ESI Worker with Forgone Subsidy, because many of those workers are covered through an employer during most, if not all, of the calendar year and therefore only have part of a year's benefits phased out with each dollar they earn during the year. τ is zero in the bottom two rows because none of those workers are heads or spouses of families that receive exchange subsidies.

The final column shows *p*, the amount of the total effective penalty for working 30 or more hours per week. The penalty comes from the combination of the explicit penalty for employers and the implicit tax on full-time work for employees. The total effective penalty is expressed in terms of the number of hours per week it takes for the typical worker to earn the amount of salary net of taxes that is equal to the dollar amount of the penalty. Although all workers in my model of weekly hours and employment have the same basic productivity, in reality the economic significance of each $1 of penalty varies across workers subject to the penalty, because they differ widely in terms of their productivity. Therefore, the dollar amount of the penalty probably reveals less about its typical significance than does the hours that a person would need to work just to raise the funds to pay the penalty. The penalty is largest in the first row because in that case full-time employment renders the employee ineligible for a subsidy that, on average, is worth about $6,000 per year, accounting for spousal earnings, asset income, taxes

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3% for state individual income taxes, which vary by state and are less costly because of their deductibility under the federal income tax.

[30] The exchange subsidies are phased out with family income at an average rate of 23%. However, in some cases insurance on the exchanges is substituting for means-tested uncompensated care (Mulligan 2013a)—a means test that would be present even without the ACA—so the net addition of the exchange subsidies to marginal income-tax rates is about 21%.

on income and payroll, and the fact that exchange plans are not perfect substitutes for employer-sponsored plans. The median hourly earnings (including fringes) among scenario A workers is $22, which means that it typically takes about 5.5 hours per week to earn an amount equivalent to the value of the exchange subsidy forgone by working full time for an employer offering affordable coverage. Table 4's first row therefore has the entry $p = 5.5$ hours.

Because the explicit employer penalties are not deductible from business income taxes, the salary equivalent of a $2,000 employer penalty (adjusted for health cost inflation) is $3,163 per year on the full-time payroll.[31] Using the March 2012 CPS, I found that the median hourly wage among workers with usual work schedules of at least 30 hours per week who are not likely to work for an employer offering coverage is about $15. At that wage, it takes 4.0 hours of work per week, 52 weeks per year, to obtain the income that would be equivalent to the $3,163 employer penalty in 2016.

To put it another way, half of the full-time workers at penalized employers earn less than $15 per hour and would each have to work four or more hours per week for free in order to compensate their employer for the penalty owed because of their employment. The point here is not that the employer penalty is the employee's "fault" or "obligation"—it's just to gauge the magnitude of the employer penalty from the perspective of the parts of the labor market where the penalties will accrue. Scenarios B and C therefore have an effective full-time-employment penalty of p equal to the amount earned in 4.0 hours per week of work.

[31] $3,163 = 2,000 \times 1.0384 / [(1 - 0.39) \times (1 + 0.0765)]$ where 39% is the employer business tax rate (federal and state; the rate is approximately the same for both C-corp and S-corp businesses) and 7.65% is the payroll tax rate. The factor of 1.0384 adjusts the employer penalty from 2014 to 2016 based on health cost inflation (per the ACA) in excess of wages because I compare the 2016 penalty to estimates of wages in 2014. (In other words, wage inflation between 2014 and 2016 does not affect my results because it is in both the numerator and the denominator of my tax measures.) The health inflation adjustment from 2014 to 2015 has already been set by the Secretary of Health and Human Services (United States Department of Health and Human Services 2014). I assume that health cost inflation between 2015 and 2016 will be the same as it was historically: 1.6% per year in excess of wage inflation.

In summary, almost half of the workforce falls into scenarios A, B, or C, and each of those scenarios involves economically significant changes in work incentives. Of those three scenarios, the two most prevalent, A and C, primarily involve a tax on full-time work, and scenario B has both a full-time-employment tax and a large implicit-earnings tax.

II. Scheduling Behaviors That Can Enhance Subsidies and Avoid Penalties

In order to see how *earnings* taxes and *full-time-employment* taxes have different behavioral effects, it helps to look at how each of them affects a household's annual income after taxes and subsidies. An *earnings* tax, such as the payroll tax or the implicit tax from the income-based phaseout of exchange subsidies, does not depend on the source, timing, or sequencing of the earnings. One person may have low income due to working part time all year, while another may have low income due to working seasonally, for only part of the year. If the two have the same total earnings for the year, and are in the same tax bracket, then the two pay the same implicit and explicit earnings taxes.

By contrast, neither of the two new implicit taxes on *full-time work*—the penalty for employers and the exchange subsidies forgone by full-time workers—is neutral as to the source of earnings during the calendar year. For a person who works part time all the year, the implicit full-time taxes would be zero for both employer and employee, whereas for a person working full time half of the year, the employee or employer, or some combination thereof, would pay the implicit full-time taxes for that half of the year. In short, unlike an earnings tax, the taxes on full-time work will apply differently to part-year, full-time workers and full-year, part-time workers.

In addition to quantifying the size of the ACA tax distortions that relate to the workweek, the purpose of this paper is to make predictions for the distribution of work hours

under the ACA, with special attention to the fraction of employees working part time and the propensity of workers to have schedules at or just below the ACA-defined hours limit for part-time workers (29 hours a week). As noted above, the ACA has two major and distinct types of taxes—earnings taxes and full-time-employment taxes—in the various combinations noted in table 3. My approach is to understand the likely consequences of these new taxes, recognizing the fact that people are different—families, distances from work, etc.—and have different desired work schedules.[32]

Obviously the full-time tax favors part-time work, and it is especially important for persons working 30–35 hours or so, because a relatively small change in their work schedule (i.e., cutting back to 29 hours per week) would permit them to avoid full-time-employment taxes. In contrast, a person who normally works 50 hours per week would have a greater schedule adjustment to make in order to become a 29er. Also, a person who works fewer hours per week in order to stay below the 30-hour threshold may want to work more weeks per year—e.g., take less time in between jobs or retire later—in order to make up for some of the earnings lost due to the reductions in hours.

It might seem that employers need a certain amount of aggregate worker-hours—the product of hours per week and weeks worked—in order to conduct their business. Under this view, more people working 29 hours rather than, say, 35, would mean that employers simply have to hire more or keep workers on the payroll longer in order to make up for the lost work. This view neglects the fact that the reduction in weekly hours will not be done for normal business or personal reasons, but rather to avoid penalties and implicit taxes. The penalties and implicit taxes will make the business of an employer more expensive, or being an employee less

[32] What follows is a nontechnical discussion of my quantitative general equilibrium model of employment and work schedules with heterogeneous agents (Mulligan 2014).

rewarding, even in those cases when people avoid the new tax by adjusting their employment conditions rather than writing a check to the federal treasury. Some employers may go out of business, or never start their businesses in the first place, because of the extra cost of the tax (or the costs of adjustments needed to avoid the tax) or because of the additional costs (e.g., higher wages) needed to attract workers to positions that render them ineligible for exchange subsidies. The net result is that the labor market may produce fewer total hours, and that higher employment rates, if any, will not be enough to compensate for the reduced hours per week.

Moreover, the changes in weekly hours induced by the full-time tax will not be the same for all workers—in neither magnitude nor direction. For instance, the tax will encourage full-time workers to compress their earnings into fewer weeks, because time spent off the payroll is not subject to the full-time tax. From a tax point of view, it would be better to work, say, 44 hours a week and earn $3,300 per month for 10 months of the year than to work 40 hours a week and earn $3,000 per month for 11 months.[33] By all accounts, tens of millions of people will still work full time under the ACA, and they will have an incentive to increase their hours of work per week while decreasing their weeks of work per year.

Thus, full-time-employment taxes are likely to affect the composition of the workforce in terms of weekly work hours by increasing the ratio of aggregate work hours to total weekly employment. That is, these taxes will likely increase employment rates for those groups reducing the weekly work hours, and decrease employment rates for those who remain full-time workers. This is known as the "composition effect."

[33] In this way, the full-time tax has the economic characteristics of what labor economists have called "quasi-fixed costs of employment": the costs vary with the amount of employment but not with the hours worked by each employee or with the amount earned by each employee. See Oi (1962). My model is even more similar to those of Rosen (1978), Calmfors and Hoel (1988), and Hart (1987), which have been used to examine the employment and hours consequences of a range of workweek policies, except that I allow for a discontinuity in the household budget set at 29 hours per week.

For the sake of illustrating the composition effect, suppose that half of the population works 22 hours per week and the other half works 40 hours per week. Also assume, for simplicity, that without the ACA both types of workers would work the full year, so that average work hours per employee in the whole workforce on any given week would be 31. With the ACA, the 40-hour workers may cut in half the number of weeks that they are on the payroll. Therefore, with the ACA, in any given week two-thirds of persons on payrolls would be 22-hour workers and one-third would be 40-hour workers. This would make the average work hours per employee in the whole workforce 28.[34] In this example, average hours per employee would be lower under the ACA entirely because of the composition effect.[35] The point here is that changes in average hours per year per worker depend not only on changes in the weekly work schedules of individual workers, but also on the correlation between work schedules and changes in the propensity to be employed in any given week.

In general, when a new tax arrives, people do less of what is taxed and substitute toward activities that are not taxed. Economic theory specifically suggests that there will be four substitution effects following from the ACA's incentives for full-time work:

1. The implicit income tax will tend to reduce weekly hours worked and weekly employment rates.
2. For employees who would otherwise work just above the ACA-defined threshold for full-time work, the implicit full-time-employment taxes will tend to reduce weekly work hours and may increase weekly employment rates. For example, a 31-hour employee will likely be induced to work a 29-hour schedule instead. Among these employees, average

[34] By convention, average hours per employee excludes from the average any person who is not on a payroll during the week.
[35] The opposite composition effect can happen with the earnings tax, especially if low-hours workers are more sensitive to tax rates.

weekly employment rates will increase by a lesser percentage than their average weekly work hours decrease.

3. For employees who work full time in spite of the new incentives, the implicit full-time-employment taxes will tend to increase weekly work hours and decrease weekly employment rates. Among these employees, average weekly employment rates will likely decrease by a greater percentage than their average weekly work hours increase.
4. The magnitude of all of these effects will vary with the magnitude of the taxes, as presented in table 4.

The economic theory of substitution effects does not by itself reveal the exact magnitudes of these effects. To predict that, it is necessary to examine the history of labor-market and public-policy changes, which is the purpose of the rest of this paper.

In principle, taxes can have income effects too. However, the ACA is largely redistributive and therefore, to a rough approximation, every dollar of income gained by beneficiaries will be a dollar lost by somebody else, so that the aggregate income effect is approximately zero. Some income effects will occur because the redistribution itself will contract the labor market and thereby reduce national income. These income effects are included in the mathematical model I have developed in connection with the four substitution effects and that I use to generate the quantitative results shown below.

III. Lessons from Labor Market History

The number and characteristics of the people who will become 29ers depends partly on how many and which types of people tend to work 30–35 hours per week (in weeks when they are working). I obtain this information from the respondents in the March 2012 CPS, using all

respondents who worked at least one week for at least eight hours per week during calendar year 2011.[36] I calculated nationwide weekly employment rates from the 2011 data by weighting each group of workers by the product of weeks worked during the year and the proportion of the workforce they accounted for. Female workers are twice as likely as male workers to have work schedules that are between 30 and 35 hours per week.

The CPS reports that an extraordinary fraction—about half—of workers work exactly 40 hours per week. The CPS is arguably the best data I have for this purpose.[37] But if that data is faulty and that fraction is exaggerated, it presents two possible problems for making and interpreting predictions about the distribution of weekly work hours. First, if past CPS respondents who were working above or below 40 hours a week (say, 38 or 41 hours a week) have been rounding their answers on the Current Population Survey to exactly 40 hours a week, the ACA's incentives tied to work hours may make those respondents more aware of the exact number of hours that they are working. This may make them more likely to report those exact numbers on the Current Population Survey. So the ACA may change reporting patterns in the CPS even if it doesn't change the actual behavior the CPS is supposed to measure. Second, the historical CPS data may understate the number of persons working 30–39 hours per week (by tending to report them as working 40 hours per week) and thereby it may have understated the number of persons who will be induced by the ACA to cut their hours to 29 or fewer.

It is also important to understand how much people tend to change their aggregate work hours (that is, the product of their weekly employment and their weekly hours when working) in response to incentives. An extensive microeconometric literature has measured these sorts of

[36] Weighted by weeks worked, less than 1% of the CPS sample has usual weekly work hours less than 8. Among the remaining sample, 25% report usual weekly work hours less than 40 and 52% report exactly 40.
[37] Time-diary studies offer an alternative technique for measuring hours worked, but the diaries usually measure minutes worked per day rather than hours per week. The ACA rules are based on hours per week, and not hours per day.

responses with various types of historical data, and I assume that essentially the same patterns will be observed as the ACA goes into full effect.[38]

I gauge employers' flexibility in adjusting worker schedules by relying on Mark Montgomery and James Cosgrove's (1993) study of the degree of substitution between full-time and part-time positions. I also show results for an alternative in which employers are more flexible than Montgomery and Cosgrove suggest.[39] Note that the economy can be flexible either because individual employers are flexible, or because employers that rely primarily on either full- or part-time workers change their total employment.

I also estimate how willing employees are in the long run to change their work schedules in response to incentives such as the penalty on non-ESI employers. The penalty is almost as if the ACA forced employees, as a condition of their working, to work an extra 4.0 hours per week (see section I above) without producing any value. This rendering of the penalty into unpaid hours per week is informative, because the marketplace shows us how work schedules tend to respond to time spent without producing value, namely commuting time. In other words, we can observe in the data whether people with longer commuting times also spend more time at work each week and, if so, how much more. I took employed persons from the 2000 Census Public Use Microdata Sample who worked at least one week in 1999, and regressed weekly work hours on weekly commuting hours. Depending on the additional

[38] The causal effect of incentives on aggregate work hours is sometimes summarized as Frisch wage elasticity of aggregate labor supply, which I assume to be 0.6 (Mulligan 2012).

[39] Montgomery and Cosgrove estimate a range of 1.7 to 2.6 for the elasticity of substitution in production between full-time and part-time workers. Most of my calculations use a value of 2. Montgomery and Cosgrove treat fringe benefits as a quasi-fixed cost for employers. In my opinion, only the administration of fringe benefits, and not the fringe benefits themselves, are a quasi-fixed cost; the fringe benefits themselves are just a way that employees choose to spend their wages. Because the substitution elasticity is log quantity change per unit log cost change, I suspect that with lower estimates of the quasi-fixed costs associated with fringe benefits, Montgomery and Cosgrove would have had greater estimates of the substitution elasticity. Owen's (1979) estimate (with macro data) of the substitution elasticity is 4.3: that is, the economy is more flexible in terms of reallocating activity between part- and full-time jobs.

regressors that are included in the model, the coefficient on commuting hours was about 0.2, which means that for each additional hour commuting per week, people seem to spend an additional 12 minutes at work per week.

This result suggests that the employer penalty, which is the equivalent of about 4.0 hours per week, would increase work schedules by about 48 minutes (0.8 hours) per week. In other words, from the perspective of a worker who is unwilling to switch to a part-time position, the ACA's penalty on employers looks like extra unavoidable commuting time, and the data seem to suggest that people work longer workweeks when they have longer commutes. Measuring the sensitivity of work schedules to employment taxes is not an exact science (for example, perhaps some of the commuting time is enjoyable or there are other variables influencing the cross-sectional relationship between work hours and commuting time). I therefore use a 0.8-hour impact for many of my estimates, but also show results with alternative impacts of 0.4 ("more costly schedule adjustments") and 1.2 ("less costly schedule adjustments"). Section IV explains why these estimates do not matter much for my final results.

The effects of the ACA will vary across persons. Among other things, people differ in terms of their desired work hours, their family situations, and the size of their employers; and therefore people differ in terms of whether the ACA will present them with a full-time-employment tax (and if so, which one), an income tax, or no new tax on their labor-market activity. In my model, these differences are summarized by the distribution of work schedules in the absence of the ACA (which I assume to be the same as the actual distribution in 2011) and by the four tax scenarios described in table 3. As explained above, each tax scenario is a different possibility for a new set of effective taxes that the ACA may create for a worker. For any tax scenario and any specific number of work hours—they both matter because the effects of any

one of the taxes depends on the type of work schedule that is appropriate for a person's occupational and family situations—the four substitution effects (see section II) are different.

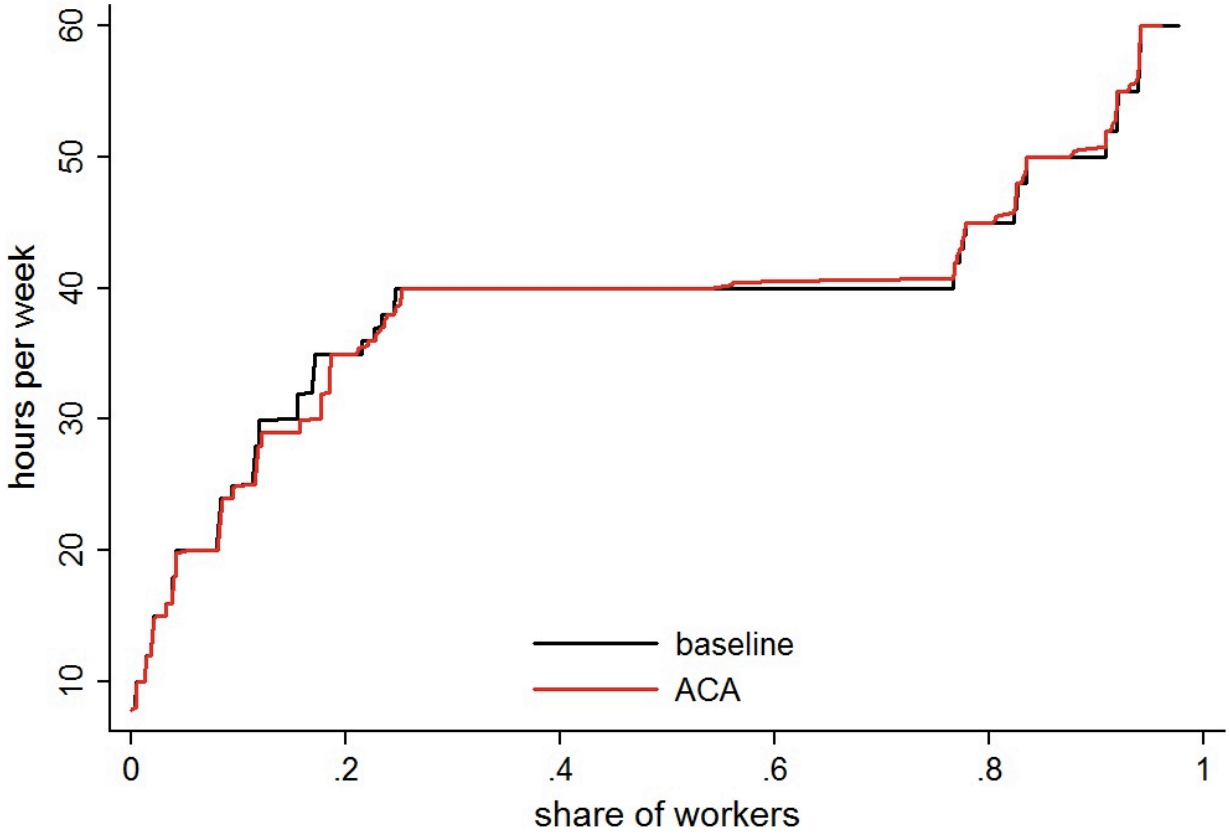
I then aggregate the predictions to selected demographic groups: men; women; the elderly; unmarried, non-poor, non-elderly household heads; and married, non-poor, non-elderly household heads. The empirical distribution of weekly work hours for each group in 2011 is measured from the March 2012 CPS. Of particular interest is that (1) women are about two-thirds of those working fewer than 40 hours per week (in 2011) and about one-third of those working more than 40; (2) working household heads are especially likely to work more than 40 hours, regardless of marital status, but unmarried working household heads are also disproportionately represented in the 30–40 hour range; and (3) the working elderly are especially likely to work fewer than 30 hours. My gender-group comparisons assume that men and women have the same likelihood of being in each tax scenario. I assume that the elderly are just as likely as the general population to experience scenario C (penalty only), but that the other tax scenarios have zero likelihood for the elderly because they are covered by Medicare and therefore not affected by the subsidies. For non-elderly, non-poor household heads, the likelihoods of the two subsidy-incentive scenarios, A and B, are increased by a factor of 1/0.76, because the poor, the elderly, and dependents do not have their subsidy eligibility determined by their own income or employment and because non-elderly, non-poor household heads worked 76% of nationwide weeks worked in 2011. The likelihood of the no-new-incentives scenario, D, for household heads is calculated separately by marital status using the methodology of Mulligan (2014).

IV. Predictions for Work Schedules and Employment under the ACA

For each of the four tax scenarios explained in table 3, I have simulated employment and work hours. Using the weights shown in table 4, I have aggregated the results into a single aggregate economy. Figure 1 shows the aggregated distribution of the number of hours worked with (red) and without (black) the ACA in 2016, excluding people who are not working during the week. The red point (0.17, 29), for example, means that, under the ACA, 17% of workers will work 29 hours or fewer, and 83% will work 30 hours or more. The comparison point without the ACA is (0.12, 29), which means that, absent the ACA, 12% of workers would work 29 hours or fewer and 88% would work 30 or more hours.

Below 29 hours per week, there is little change in the distribution. Not surprisingly, the ACA causes fewer workers to work between 30 and 35 hours per week—because those are the workers who can most easily reduce their hours below the ACA-defined threshold for full-time work. (This threshold is relevant for scenario A workers, who are ineligible for exchange subsidies solely because they have been offered ESI, and also for scenario B and C workers, who are subject to employer penalties.) The right half of the red (with-ACA) distribution is shifted in the direction of more hours because the employer penalties and the exchange subsidies forgone by ESI workers are quasi-fixed costs of employment—that is, the costs are the same regardless of how many hours are worked beyond 40. Recall substitution effect 3 from section II, above: people who prefer to work full time can reduce penalties or enhance subsidies by working slightly more hours per week and fewer weeks per year.

Figure 1. The Impact of the Affordable Care Act (ACA) on the Weekly Hours Cumulative Distribution Function among the Employed

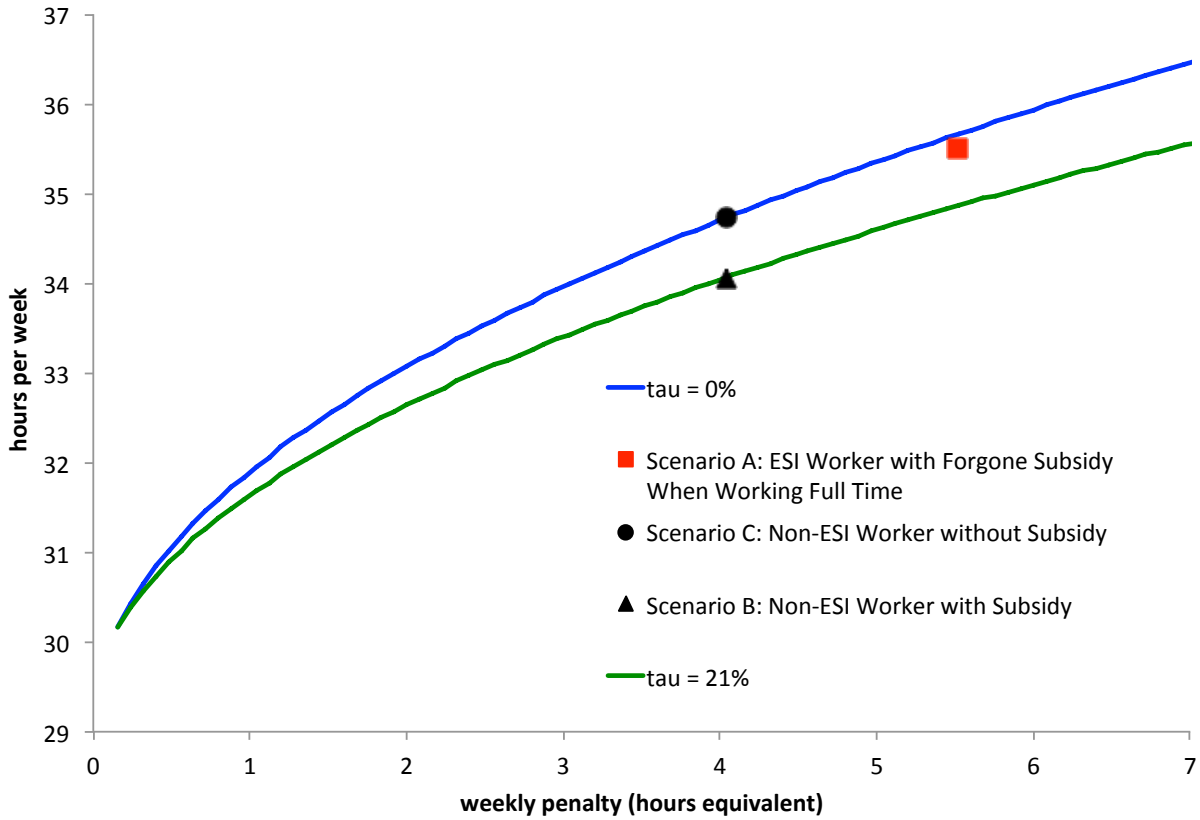


Note: ACA is the weighted average of all tax scenarios.

Depending on the tax parameters, there is a "Rubicon" number of hours beyond which the adjustment to part-time work is too costly to justify the tax savings. I call a person working that number of hours a "marginal 29er" because a person who would work those hours in the absence of the ACA is, under the ACA, on the margin between working 29 hours and avoiding the full-time tax and working the optimal number of full-time hours and suffering the full-time tax. Figure 2 graphs the relationship between the marginal 29er and two of the tax parameters: the ACA addition to the marginal-earnings tax rate, "tau," and the amount of the effective full-time-employment penalty, *p*. It also shows tax scenarios A, B, and C, as a square, a triangle, and a circle, respectively. Figure 2's horizontal axis measures the penalty in hours per week. Its

vertical axis measures the "Rubicon" value for the weekly hours a person would work in the absence of the ACA. For example, the triangle located at (4.0, 34.7) indicates that persons in tax scenario B (facing both penalty and subsidy) who work more than 34.7 hours in the absence of the ACA would just marginally prefer to pay the 4.0-hour penalty and continue to work full time. Persons who are working less in the absence of the ACA would choose to work part time under the ACA, and in many cases would do so by working just below the 30-hour threshold.

Figure 2. Weekly Hours of the Marginal "29er" but for the Affordable Care Act, as a Function of the Tax Parameters



Note: For definitions of the tax scenarios, see table 3 and the accompanying text. Market colors distinguish implicit full-time-employment taxes (red) from explicit ones (black).

The more hours worked in the absence of the ACA (as shown in figure 2), the greater the percentage of workers who will work just below the 30-hour threshold under the ACA. For the

scenario A workers (those at ESI employers who satisfy the other income and family criteria for exchange subsidies) the critical value is shown as a square. The height of the square is 35.5, which means that people in this tax scenario who are working 35.5 hours per week without the ACA would just marginally prefer to pay the 5.5-hour penalty under the ACA and continue to work full time.

Table 5 shows the difference between labor-market activity with and without the ACA. The top panel has a breakdown by the three different nontrivial tax scenarios A–C, and the bottom panel has a breakdown by demographic groups. The bottom row of each panel shows the total for all scenarios or groups combined. According to this model, the ACA will reduce employment and aggregate hours, and the amount of the reductions will be slightly more than 3%. The effects on employment rates and aggregate hours are most significant for those people who fall into the least common scenario, B. But the effects are still economically significant for people in the more common scenarios A and C.

Table 5. The Affordable Care Act's Impact on Various Summary Labor Statistics

Impacts by Tax Scenario[a]

Scenario[b]	Logs				Percentage of employees working	
	Weekly emp. rate	Aggregate hours	Weekly hours per employee			
			VW[c]	IW[d]	26–29 hrs/wk	1–34 hrs/wk
Scenario C: Non-ESI Worker without Subsidy	−0.045	−0.039	0.006	0.010	5.7	1.1
Scenario B: Non-ESI Worker with Subsidy	−0.189	−0.180	0.009	0.003	5.7	−0.2
Scenario A: ESI Worker with Forgone Subsidy When Working Full Time	−0.075	−0.076	−0.001	0.006	10.9	6.3
All (including Scenario D: No New Incentives)	**−0.033**	**−0.031**	**0.002**	**0.004**	**3.6**	**1.4**

Impacts by Demographic Group[a]

Demographic group	Logs				Percentage of employees working	
	Weekly emp. rate	Aggregate hours	Weekly hours per employee			
			VW[c]	IW[d]	26–29 hrs/wk	1–34 hrs/wk
Female	−0.031	−0.031	0.000	0.009	4.7	1.8
Male	−0.034	−0.031	0.003	0.011	2.6	1.1
Elderly	−0.009	−0.009	0.000	0.008	1.8	0.4
Unmarried head[e]	−0.031	−0.030	0.001	0.003	3.6	1.5
Married head or spouse[e]	−0.035	−0.033	0.002	0.004	3.9	1.7
All (including dependents and elderly)	**−0.033**	**−0.031**	**0.002**	**0.004**	**3.6**	**1.4**

Notes:
(a) Every table entry is a *difference* between the Affordable Care Act (ACA) outcome and the non-ACA outcome, and expressed in percentage points in the final two columns.
(b) For definitions of the tax scenarios, see table 3 and the accompanying text.
(c) VW impact (in logs) is the difference between the impacts for log aggregate hours and log employment rate.
(d) IW impact is the log change in weekly hours averaged across worker types (before logging) using non-ACA employment shares as weights.
(e) Excludes poor and elderly workers. Marital-status groups are the only demographic groups with custom estimates of the hour equivalents of the full-time-employment taxes.

The size of the tax effects depends on the economic significance of the taxes themselves—as measured by the amount taxed (implicitly and explicitly) and the size of the populations affected—and the responsiveness of employers and employees to each unit of taxation. This paper's estimates of the aggregate effects of the ACA are larger than those of

previous studies, both because this paper considers a larger number of ACA taxes than previous studies have and because this paper estimates that the taxes' magnitude will be larger than previous studies have suggested.[40] An early study by Cutler and Sood (2010) underestimated the size of the employer penalty that would ultimately be in the ACA, and failed to consider any form of implicit taxation. The Congressional Budget Office initially acknowledged the existence of implicit income taxes in the ACA, but decided to omit any tax effects from its initial estimates of the law's employment impact (Congressional Budget Office 2010). More recently, the CBO incorporated some tax effects into its estimates of the ACA's employment impact and concluded that the ACA would reduce employment by 1.5% or 2% (Congressional Budget Office 2014a, pp. 119–27). I have not seen a quantitative explanation from CBO about its measurement of various taxes and how the measures are combined into an overall impact.

Table 4's "frequency-weighted average" shows my estimate of the nationwide average magnitude of the ACA's taxes. The ACA adds an average of 1.9 percentage points to the marginal-earnings tax rates. *In addition*, it adds an effective full-time-employment penalty equivalent to 2.2 hours per week, or almost 6% of a full-time schedule. If, despite the caveats noted above about the varying significance of the ACA taxes for workers with different schedules and incomes, we had to combine the marginal-earnings tax and the full-time-employment penalty into a single comprehensive tax on work, we could multiply the 6% penalty by the fraction of workers who work full time (roughly three-quarters) and add the result to the 1.9% marginal-earnings tax rate to get a comprehensive nationwide average ACA rate of about 6%, on top of all the non-ACA taxes. That's very large—akin to doubling the employee payroll

[40] This paper is not exceptional in terms of its assumed responsiveness (aka "elasticities") to each unit of taxation. As far as I can tell, the Congressional Budget Office (2014) and I assume essentially the same responsiveness. Cutler and Sood (2010) actually assume that the labor market is somewhat more responsive to taxation than I do.

tax for old age and disability insurance—and is the primary reason why I expect the ACA to contract the labor market by 3%.

At first glance, my predictions may seem at odds with Massachusetts's experience with the health reform law signed by Governor Romney in 2006, because the evolution of the Massachusetts labor market after that date does not appear to be significantly different than in other states without health reforms (Dubay, Long, and Lawton 2012). However, the labor taxes created in Massachusetts and the ACA are qualitatively and quantitatively different from each other. The Massachusetts employer penalty was proportional to total work hours at an employer rather than to the number of full-time employees, as with the ACA's employer penalty, and was an order of magnitude less than the penalty in the federal law (Mulligan 2013b). Although both Massachusetts and the ACA created subsidized health plans for persons who could not obtain coverage from their employer, Massachusetts introduced only minimal implicit employment taxes because its subsidized coverage had a number of limitations and had been preceded by longstanding health assistance programs for the unemployed.

The final two columns of table 5 quantify the bump in the distribution of hours worked shown in figure 1. The second-to-last column shows that, overall, 3.6 percentage points more of the workforce will work 26–29 hours than would without the ACA (these are the 29ers).[41] The final column shows that the percentage of workers with the ACA that will be employed part time by the Bureau of Labor Statistics' definition (that is, 34 hours per week or fewer) is within 1.5 points of the percentage without the ACA. This is an indicator that the frequency of 29ers can increase without much increasing the fraction of workers working part time by the bureau's definition.

[41] In the definition of "29er," I include those working 26, 27, or 28 hours per week, because the threshold for salaried workers does not have to be exactly 30 hours per week (see above).

The middle columns of table 5 show the ACA's impact on work hours per employee, by two measures. The first measure, "VW" ("variable weight"), just divides aggregate hours by the number of employees. However, this measure could be affected by the ACA even if zero employees had the length of their workweeks affected, because employment-rate impacts could be correlated with the length of the workweek. In other words, the VW measure is influenced by the "composition effect" noted in section II above. The "IW" ("initial weight") measure averages changes in weekly work hours using non-ACA employment rates as weights. By construction, this measure shows an impact only if the impact is non-zero for at least one type of worker (in terms of the number of hours they work without the ACA). The IW measure is different from the VW measure to the extent that there is a composition effect: an effect of the ACA on the composition of worker types among those employed during any given week.

Overall, both measures show essentially zero impact on weekly hours per worker, because some workers reduce their hours and others increase them. However, the two measures are somewhat different at a scenario level: scenarios A *and* C have employment rates fall more for high-hours workers and scenario B has employment rates fall more for low-hours workers. The former case is especially interesting because the model predicts that low-hours workers had little surplus from working before the ACA, and the ACA's increase in the marginal tax rate eliminates them from the labor market.[42]

The bottom panel of table 5 shows results for demographic groups, which are formed by changing the scenario and worker-type weights to match the group of interest, rather than the population as a whole. Women (without regard to marital status) are especially likely to cut their hours to below 30 because they are disproportionately likely to otherwise work 30–35

[42] To put it another way, to the extent that the model is wrong that the employment rates are especially sensitive among low-hours workers, then the IW measures are more informative than the VW measures.

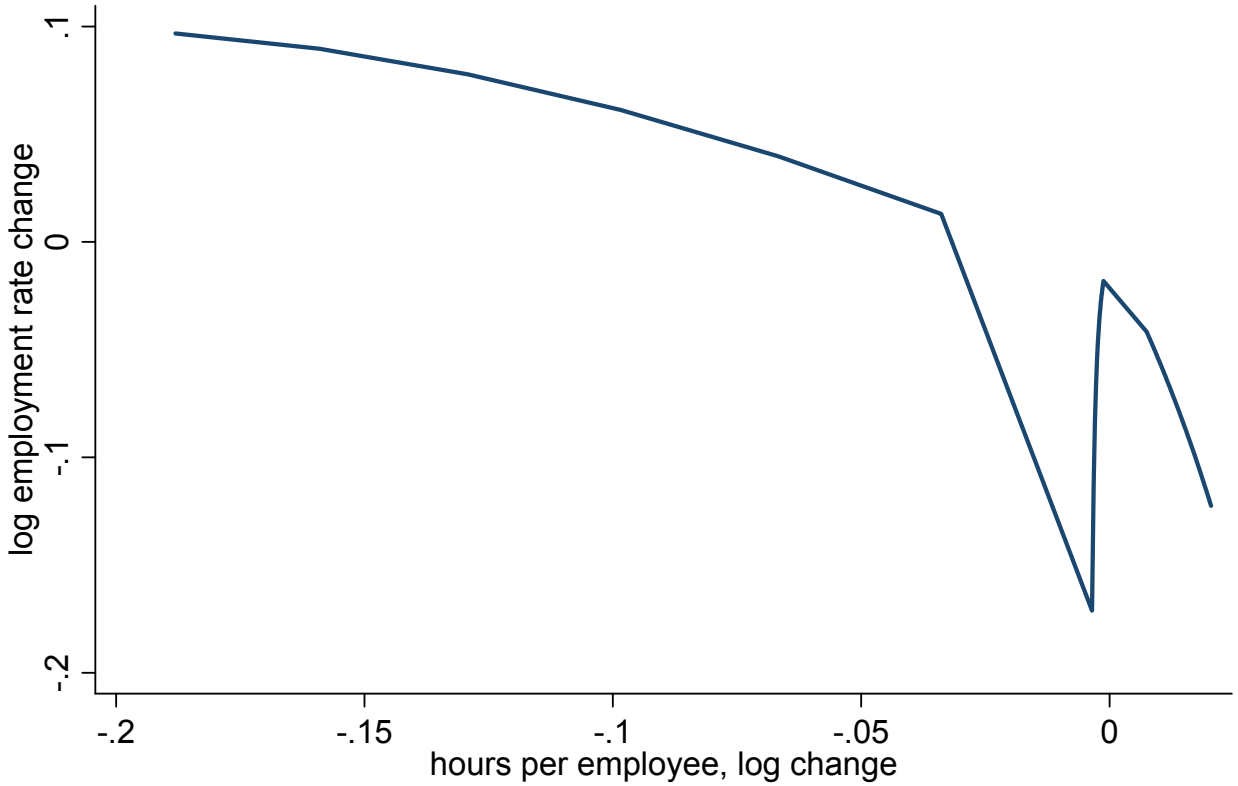
hours in the absence of the ACA, and can therefore move to 29 hours with comparatively little cost. As compared to married heads, unmarried heads are more likely to have their eligibility for exchange subsidies hinge on their ESI status, but the subsidy amount is less for them (because by definition they do not have a spouse who could get them ESI coverage or who would be subsidized on the exchanges). The fourth and fifth rows of the table show that the two forces roughly offset, because the ACA has a similar impact on unmarried heads as it does on married heads.

The elderly, defined to be persons in households in which the youngest person is at least 65 years old, have impacts closest to zero because they cannot receive exchange subsidies regardless of how much they earn or work. However, the elderly may work at employers that are assessed the employer penalty, in which case they experience the penalty-only tax scenario, C.

The results here show that the employment impacts of the ACA's full-time-employment taxes reflect two forces: (1) a tendency to substitute weekly hours for weekly employment, holding aggregate hours fixed, in order to economize on the full-time-employment taxes (which do not accrue during times of non-employment), and (2) reductions in aggregate work hours due to a lost surplus from working. Figure 3 illustrates by showing the cross-sectional relationship between impacts on weekly work hours and weeks worked (both in logs) among persons experiencing scenario A, Full-Time ESI Worker with Forgone Subsidy. If aggregate hours were held fixed, then figure 3 would show a straight line with slope equal to −1. The fact that the curve in figure 3 tends to be concave, with slopes closer to zero in the second quadrant and slopes further from zero in the fourth quadrant, means that aggregate work-hours impacts are more negative for worker types further from the origin in figure 3. The jump in the schedule reflects results for the handful of workers who would work fewer than 16 hours per week even

without the ACA, among which the surplus for working (and thereby the sensitivity of their supply of aggregate hours) varies widely.

Figure 3. Employment and Hours Impacts in the Cross Section



Note: Only one Affordable Care Act tax scenario is shown: Scenario A: ESI Worker with Forgone Subsidy When Working Full Time. For definitions of the tax scenarios, see table 3 and the accompanying text.

In a way, this analysis finds that the ACA full-time threshold of 30 hours per week strikes a balance between groups of workers reducing weekly hours and groups increasing them, resulting in entries for table 5's middle two columns that are essentially zero. For this reason, the willingness of employers and employees to adjust work schedules does not matter much for determining the employment and hours effects. If adjustments are more costly than I assume, then the size of the downward hours adjustments would be smaller than I assume—there would be fewer 29ers—but the size of the upward adjustments would be less too, so the net weekly

hours results would not be much different than shown in table 5. (Remember that the ACA still significantly reduces the reward to employment even when employers or employees find work-schedule adjustments to be too costly to engage in.) By the same reasoning, the results should not be much different if work schedule adjustments were less costly than I have assumed, except that the number of 29ers would be greater.

Table 6 confirms the intuition above. The top row of the table displays the results under my benchmark assumptions—i.e., the results shown in the bottom row of table 5. The next two rows show the results under two alternative assumptions about the employee costs of schedule adjustments. The "high employer subst. between FT and PT" row shows results under the assumption that employers are easily able to substitute part-time positions for full-time positions. Notice that the employment rate, aggregate hours, and average weekly work hours columns are hardly different than they are under the benchmark. What varies more is the number of workers who become 29ers under the ACA, and the number of workers who work part time by the Bureau of Labor Statistics' definition.

The next two rows of the table look at the predicted effects of hypothetical 34- and 35-hour thresholds for full-time work, rather than the 30-hour threshold that is in the law. In these hypotheticals, there is no incentive for a person under the 34- or 35-hour thresholds to become a 29er, because the 29-hour schedule would have no special advantage. However, with a 34-hour threshold 4% of the workforce would change their work schedule from 34 or more hours to fewer than 34 hours (typically, they would change to exactly 33 hours).

Table 6. Sensitivity Analysis: Affordable Care Act (ACA) Impacts under Alternative Assumptions

Assumption	Logs				Percentage of employees working	
	Weekly emp. rate	Aggregate hours	Weekly hrs per employee			
			VW[(a)]	IW[(b)]	26–29 hrs/wk	1–34 hrs/wk
Benchmark	**−0.033**	**−0.031**	**0.002**	**0.004**	**3.6**	**1.4**
Schedule adjustments are more costly	−0.033	−0.032	0.002	0.002	2.5	0.3
Schedule adjustments are less costly	−0.032	−0.031	0.001	0.004	5.2	3.0
High employer subst. between FT & PT	−0.033	−0.031	0.002	0.004	3.6	1.5
34-hour threshold rather than 30	−0.031	−0.030	0.001	0.003	0.0	4.1
35-hour threshold rather than 30	0.018	−0.020	−0.038	−0.033	0.0	27.2
Lower subsidy valuation rate	−0.032	−0.029	0.003	0.004	2.6	0.4

Notes: Every table entry is a *difference* between the ACA outcome and the non-ACA outcome, and expressed in percentage points in the final two columns.
(a) VW impact (in logs) is the difference between the impacts for log aggregate hours and log employment rate.
(b) IW impact is the log change in weekly hours averaged across worker types (before logging) using non-ACA employment shares as weights.

The middle columns of the table show that a 35-hour threshold would not create the same balance as the 30- and 34-hour thresholds would between groups of workers reducing weekly hours and groups increasing them. The former groups dominate, and under this analysis, average weekly hours fall more than 3%. Employment rates increase.[43] Although revenue is not shown in the table, the 34-hour and 35-hour thresholds would obtain less revenue for the government than the (actual) 30-hour threshold, because more workers could avoid the penalty or obtain the exchange subsidies.

[43] As noted above, the CPS data show about half of workers working exactly 40 hours per week in 2011, and give little information about how work-schedule preferences might vary within that group. My model's quantitative predictions are therefore inaccurate when the gap between the full-time threshold and 40 is near to, or less than, the hourly amount of the effective full-time-employment penalty, as it is with the 35-hour threshold.

V. Conclusions

The Affordable Care Act has several types of incentives that will affect work schedules. One is an explicit penalty on employers that do not offer affordable health coverage to their full-time employees. That penalty is levied in an amount proportional to the number of full-time employees on the payroll. The second, but not necessarily less important, is the implicit full-time-employment tax that stems from the fact that full-time employees at employers that *do* offer coverage are ineligible to receive subsidies on the law's new health insurance exchanges, whereas part-time employees (and persons not on any payroll) may get them. The third new incentive is an earnings tax implicit in the determination of the amount of the exchange subsidies: those with higher incomes receive lower subsidies.

Under the assumptions of this analysis, the resulting effective penalty on full-time employment, and the ACA as a whole, will reduce full-time employment, but will not necessarily reduce average weekly work hours per employee. From the point of view of employees who continue to work full-time schedules under the ACA—and there will be many of them—a full-time-employment tax is just an employment tax, and it thereby induces them to work slightly more hours per week for fewer weeks. The law may also disproportionately reduce employment rates among persons who normally work short schedules, and thereby increase average work hours per employee by changing the composition of the workforce.

In a way, the near-zero average weekly work hours effect reflects a balance created by the law's 30-hour threshold between groups that will reduce their weekly hours and groups that will increase them. But the near-zero effect on average weekly work hours does not mean that the ACA fails to distort work schedules and their efficiency, just that the work-schedule effects may not be detectable with aggregate data, even if that data were disaggregated according to

the 35-hour definition of full-time work that has been used by the Bureau of Labor Statistics over the years.

Both the implicit full-time-employment tax and the implicit earnings tax will significantly reduce the fraction of the population that is on a payroll in any given week. My estimates suggest that the ACA will reduce the nationwide weekly employment rate by at least 3%.[44]

The ACA will also reduce employment because it reduces the incentive for out-of-work people to accept jobs and because it subsidizes layoffs, quits, and retirements. Before the ACA, people found health insurance to be less expensive when employed than it was when not working, and health insurance expenses were one reason why unemployed people have been eager to get back to working in a position with coverage (Gruber and Madrian 2004). But the ACA reverses the calculus by giving people who do not work more opportunities for subsidized coverage than employed people will have. Employers and employees used to find layoffs, quits, and retirements to be financially costly because, among other things, many people want to have health insurance coverage even after their job ends. For example, a survey of employers shows how layoffs traditionally created a liability for them because the employers "provided some amount of free or reduced cost [continuing] coverage for laid-off workers," but that federal assistance can free employers from this expense by allowing them to reduce or drop their benefits for laid-off workers.[45] Employers have already realized that the ACA's exchange subsidies make early retirements less expensive (Dardick 2013).

[44] The estimate of 3% is an estimate of the impact and not an estimate of the total employment-rate change between, say, 2012 (before the exchanges and penalties took effect) and 2016. Non-ACA factors, such as the aging of the workforce and the expiration of the Emergency Unemployment Compensation program, have also been changing between 2012 and 2016.

[45] Randall Bovbjerg et al. (2010). Robert Topel and Finis Welch (1980) also explain how benefits for the unemployed are, in effect, layoff subsidies.

This analysis finds that the employment effects vary by demographic group. The elderly are hardly affected by the law at all, because their longstanding Medicare program renders them ineligible for the new exchange subsidies and the implicit income and full-time-employment taxes that go with the subsidies. Women are about twice as likely as men to have their weekly work hours pushed below 30 as a consequence of the law.

This paper focuses on the ACA's consequences for work schedules, but some of the same incentives will have other effects as well. People and businesses may misreport incomes (or work entirely off the books) in order to maintain eligibility for income-tested benefits. They may also misreport hours worked (or manipulate their measurement) so that the employer avoids a penalty or the employee remains eligible for exchange subsidies.

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