The New Full-time Employment Taxes[*]

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Abstract

The Affordable Care Act introduces or expands taxes on incomes and full-time employment, beginning in 2014. The purpose of this paper is to characterize the new full-time employment taxes from the perspective of a household budget constraint, measure their magnitude, and assess their likely consequences for employee work schedules. When the ACA is fully implemented, full-time employment taxes will be prevalent and often as large as what workers can earn in five hours of work per week, 52 weeks per year. The economic significance of the ACA's full-time employment taxes varies by demographic group: they are non-monotonic in age, increasing with family size, and negatively correlated with schooling.

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A full-time employment tax is a tax or penalty owed by, or subsidy withheld from, a person as a consequence of his full-time employment status. For the first time in 2014, millions of people face such taxes on their full-time work. More workers will face full-time employment taxes in 2015 when assessable employers owe penalties on the basis of the number of full-time employees on their payroll. Both of these taxes are provisions of the Affordable Care Act of 2010 (hereafter, ACA), on top of the longstanding taxes on incomes and payroll. This paper assesses the magnitude, direction, and economic characteristics of the full-time employment tax wedges created by the ACA.

By definition, part-time employed and non-employed persons are exempt from a full-time employment tax. I follow the usual steps of public finance analysis and first look at the tax wedge – the gap between supply and demand prices created by a tax or subsidy – before attempting to draw conclusions about the tax's behavioral effects and ultimate incidence. For simplicity, I assume that employees are legally liable for all marginal taxes and penalties and are legally entitled to all marginal subsidies, even when the actual liability falls on the employer. As long as prices can fully adjust to reflect supply and demand, and ignoring enforcement issues, my legal liability assumption is just a normalization and does not imply that employees ultimately bear the burden of taxes. However, proper tax measurement requires an assessment of the treatment of the ACA's full-time employment taxes by other parts of the tax system, e.g., whether a full-time employment tax is deductible from employer business income taxes. The last step in the analysis is to begin to consider the equilibrium consequences of the new tax wedges.

The prevalence and size of the new full-time employment tax (hereafter, FTET) wedges are economically important. Almost half of the working population is directly affected by at least one of the new FTETs. The ACA's FTET wedges vary substantially across groups: they are most significant for young and uneducated workers and least significant for the elderly. From an aggregate point of view, the employer penalty by itself is historically significant but nonetheless the wedges that they create are matched, if not exceeded, by the ACA's implicit FTET. My

results account for the facts that a variety of longstanding tax and subsidy rules also affect work incentives (in both directions) and that many people will not participate in programs for which they are eligible.[1]

Although this paper does not even attempt to discuss all of the parts of the ACA that relate to the labor market or to taxation, its Section I begins with an overview of the ACA's main components related to insurance coverage. Section II explains how two of those components contain taxes on full-time employment and represents the taxes in terms of household budget constraints. Section III discusses determinants of the magnitude of those taxes. Section IV has the main results on the distribution of the ACA's FTET across workers. Section V discusses some of the behavioral effects of FTETs, and Section VI concludes.

I. ACA Components Related to Insurance Coverage

A. Health Insurance Marketplaces

In order to help the uninsured get health insurance coverage, the ACA created what it calls "health insurance exchanges," where individuals can shop for health insurance coverage for themselves and family members and in many cases get federal assistance with the health insurance expenses. An exchange is not a physical location; rather, this refers to the collection of health insurance policies offered to each state's residents by private insurance companies subject to state and federal regulations regarding standardization of policy benefits, provisions, and pricing. Many, but not all, individuals shop on the exchanges by visiting an internet site that gathers customer information and quotes prices.

The exchange plans are categorized by "metal," which indicates the typical fraction of medical expenditures that are covered by the plan, as opposed to being paid out of pocket by the patient. A bronze plan pays 60 percent, with the other 40 percent paid, on average, out of pocket. Silver, gold, and platinum plans pay 70 percent, 80 percent, and 90 percent respectively (United States Department of Health and Human Services 2014c). Silver plans are the most popular (United States Department of Health and Human Services, 2014b) and also serve as pricing benchmarks.

[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.

Anyone lawfully present and living in the United States, but not incarcerated, can purchase health insurance on the exchanges (United States Department of Health and Human Services, 2014a), as long as they pay full price with after-tax dollars. However, most persons getting insurance through the exchanges are receiving financial assistance (United States Department of Health and Human Services, 2014b), which is restricted to specific populations. As we shall see, the financial assistance rules create some of the ACA's taxes.

1. Premium Tax Credits

High insurance premiums are one of the major reasons people were uninsured prior to the ACA (Henry J. Kaiser Family Foundation 2013), which is why the ACA includes premium assistance tax credits to help families pay for their exchange coverage. Exchange plan participants are eligible for premium tax credits only if they (1) are not eligible for affordable coverage, and not enrolled in any coverage, through their employer or an immediate family member's employer; (2) have purchased coverage on the exchanges; (3) have family calendar year income between 100 and 400 percent of the poverty line; and (4) satisfy other criteria.[2] The amount of the premium tax credit is the excess, if any, between the full premium for the second cheapest silver plan and an ACA-specified percentage of their calendar year income.

2. Cost-sharing Subsidies

As noted above, the expected out-of-pocket costs on a silver plan are significant. This is part of the design of the law: health plan participants who are paying out of pocket have an incentive to seek out less costly care. However, families expected to be below 250 percent of the poverty line are, in effect, permitted to get a gold or platinum plan for the price of a silver plan.[3] Hereafter, I collectively refer to premium tax credits and cost-sharing subsidies as "exchange subsidies."

[2] The other criteria include: not eligible for government-sponsored coverage; citizen of, or lawfully in, the United States; and either unmarried or filing a federal tax return jointly with spouse.
[3] Gold and platinum plans are somewhat different (often with greater out-of-pocket costs) than silver cost-sharing-reduction plans for persons below 250 percent of the poverty line.

B. The Employer Mandate

Because of criterion (1)—that exchange subsidies are available only to persons who are not eligible for affordable employer coverage—the ACA requires that large employers either provide affordable, qualified coverage or pay a penalty. The law defines a large employer to be one that had at least fifty full-time-equivalent (FTE) employees in the calendar year previous to the year in which it failed to provide coverage. Part-time employees count toward full-time-equivalents in proportion to their hours worked.

C. The Individual Mandate

The ACA requires individuals to get coverage, pay a penalty, or receive a hardship exemption. The penalty is administered as part of the federal personal income tax return, and its 2016 amount is the maximum of a $695 per uninsured household member (uninsured children count half and the total uninsured is capped at three), indexed to inflation, or 2.5 percent of household income.[4]

D. Medicaid Expansions

Medicaid is a longstanding health insurance program for the poor, and it is essentially free for its participants. Income eligibility limits are set by states; in 2012 they averaged 84 percent of the poverty line for working parents and somewhat less for jobless parents.[5] Many states also impose asset limits (that is, families with more than a few thousand dollars in assets cannot participate even if they have no income), especially for adult participants. Beginning in 2014, the ACA expands Medicaid participation by raising (in participating states) the income threshold for adult eligibility to 133 percent of the poverty line and reducing barriers to participation.

The new income thresholds for Medicaid create a complicated system of subsidies for families near but above the poverty line because exchange subsidies are supposed to be withheld

[4] The individual mandate penalty is less in 2014 and 2015. The total penalty for a year (even if coverage was lacking for just part of the year) is capped at the national average bronze premium; see section 5000A(c)(1)(B) of the Internal Revenue Code as amended by the ACA.

[5] The cross-state average weights thresholds from Henry J. Kaiser Family Foundation (2012) by 2010 state population. The average threshold for children age one to five was 141 percent FPL.

from persons who are eligible for their state's Medicaid program even though they may have a calendar year income above the poverty line and thereby satisfying the income criteria for exchange coverage. To make matters more complicated, the exchange subsidies and Medicaid use different income concepts (Mulligan 2014).

Unless noted otherwise, the analysis in this paper assumes that Medicaid eligibility does not prevent receipt of exchange subsidies. This simplifies the analysis and, for several reasons, may be a pretty good approximation to actual practice. First of all, the vast majority of people in families satisfying the income-eligibility criteria for exchange subsidies are not Medicaid-eligible. Second, many of the states are not raising their Medicaid income threshold. Third, due to the different income concepts and enrollment rules used by the two programs, it will often be administratively difficult to withhold exchange subsidies from a family that is Medicaid eligible but satisfies the other eligibility criteria for exchange subsidies. My assumption about the overlap between Medicaid and exchange subsidies would be less accurate for the purposes of studying specific groups with a large fraction of its members having incomes between 100 and 133 percent of the poverty line.

II. Distorting the Workweek

A. ACA Provisions Containing Scheduling Incentives

Because of their rules for eligibility and exemptions, two of the above components of the ACA introduce incentives to change the workweek. The most acknowledged is the penalty on large employers that do not offer health insurance to their full-time employees. Because the amount of the penalty is proportional to the number of full-time employees (over thirty full-time employees) on the payroll, the penalty creates an incentive to substitute part-time positions for full-time positions.

Less acknowledged is the ACA provision that employees and their families cannot receive subsidized coverage – in the forms of cost-sharing assistance and tax credits to offset insurance premiums – on the ACA's health insurance exchanges unless their employer fails to offer them affordable coverage. Except in the increasingly rare cases where part-time positions are eligible for employer health coverage too, an employee (and family) at a firm offering

affordable coverage would be eligible for exchange subsidies only if he worked part-time, or not at all, which amounts to an implicit tax on full-time employment.[6] The amount of the implicit tax on full-time employment is equal to the employee's valuation of the exchange subsidy he forgoes as a consequence of working full-time. This implicit tax has many of the economic characteristics of the employer penalty; they are both full-time employment taxes.[7] Full-time employment taxes are the subject of this paper.

B. The Family Budget Constraint: Employer not Offering Coverage

Before attempting to measure the magnitude of these incentives, it helps to see how the provisions might enter a household budget constraint. Take a worker that is employed an average of $52n$ weeks per year; n is the fraction of his adult lifetime that he is employed. His family's adjustable gross income (hereafter, AGI) is $o + [wh\text{-}q\text{-}p(h)]n$, where $q \geq 0$ is a quasi-fixed cost of employment, o is other components of AGI (such as asset income or spousal earnings) and $p(h)$ is the employer penalty. q is a cost that employers pay, aside from a penalty, for each worker it has. It includes scheduling costs, payroll costs, hiring and training costs, and perhaps management and coordination costs. Labor economists refer to q as a "quasi-fixed" cost because it does not vary with the number of hours that are worked, but it does vary with the number of workers on the payroll (Oi 1962). The quasi-fixed cost is one reason why an employer cannot simply replace one forty-hour worker with four ten-hour workers and get the same results. The employer running ten-hour weekly schedules will find that he has additional administrative costs, more workers in need of training, etc.

[6] See also Gamage (2012) and Mulligan (2013a). The incentives can be more complicated for dual-earner couples; see below my discussion of spousal coverage. On the (infrequency) of health insurance offerings to part-time employees see (ADP Research Institute 2013, before the ACA) and note that the rare employer that was offering coverage to part-time employees is encouraged by the ACA to stop doing so (Wayne 2014).

[7] For any household head or spouse that has a family member (or himself) receiving exchange subsidies some time during the calendar year, the ACA also increases the marginal tax rate on their earnings and unemployment benefits because the exchange subsidies are phased out as a function of the sum of head and spouse income. Like any additional marginal income tax, this tax can reduce hours worked to the extent that employee work schedules have traditionally been lengthened in order to economize on employers' quasi-fixed costs of employment (see below). This additional marginal income tax is not discussed in this paper, except to the extent that it interacts with the ACA's full-time employment taxes.

Both the employer penalty $p(h)$ and the quasi-fixed cost q are paid by the employer. Because the first step in this paper is to characterize and measure the wedge between marginal revenue product and employee value of time – before making conclusions about the behavioral consequences of the wedges – I assume for the moment that the employer simply passes all marginal employment costs on to employees. This assumption helps economize on notation and, for the reasons mentioned in the introduction, does not affect conclusions about the size of the ACA's tax wedges.[8] As a result, a worker's compensation is the product of his marginal hourly wage w and his work hours h minus these two costs.[9]

The ACA requires that large employers either provide affordable, qualified coverage or pay a penalty.[10] The penalty is a function of the length h of the weekly work schedule: namely, a step function:

$$p(h) = I(h > P)pZ \tag{1}$$

where $I()$ is the indicator function. P is the hours limit for "part-time" employment (that is, the hours limit for positions exempt from the penalty at assessable employers), which I take to be 29 hours per week.[11] The constant p is the amount of the employer penalty measured in hours per

[8] A somewhat different analysis is needed to the extent that legislated minimum wages or other frictions get in the way of the wage adjustments that make employer and employee taxes equivalent in the long run, as they might for the types of workers who currently earn near the minimum wage. By ignoring rigid wages, this paper's equilibrium analysis probably underestimates the amount by which the ACA reduces the employment of low-skill workers because the ACA's employment impact can be understood as having two components: the impact that would occur if wages fully adjusted to labor demand and supply, plus the impact of having a rigid wage rather than one that fully adjusts. Both components are negative—in the direction of less employment—but only the former component is examined in this paper. See also Baicker and Levy (2008) who estimate the low-skill employment effects of a hypothetical health insurance mandate (an analogue to the latter component).

[9] The labor market would not function efficiently in the presence of quasi-fixed costs if employers just posted an hourly wage and let employees choose hours. Market efficiency is enhanced by employers' charging employment fees (my approach: the fees are $q + p(h)$) or offering employees a combination of hours and earnings packages (Rosen 1978).

[10] Section 4980H(c)(2)(E) of the Internal Revenue Code, as amended by the ACA, defines a large employer to be one that had at least fifty full-time-equivalent (FTE) employees in the calendar year previous to the year in which it failed to provide coverage. Part-time employees count toward full-time-equivalents in proportion to their hours worked.

[11] The ACA sets the limit at 29 hours per week for hourly employees (i.e., 30-hour workers are considered full time), with some caveats noted below.

week and Z is a parameter converting hours per week into units of the consumption good (more on Z below).

The household pays a tax at constant rate τ_L on its labor income, especially employee payroll taxes and employee personal income taxes. For someone working for an employer that does not offer health insurance coverage, the family budget constraint is:

$$c = g + (1 - \tau_L - \beta)\{o + [wh - q - I(h > P)pZ]n\} \quad (2)$$

where c is household consumption including health expenses. g refers to untaxed government subsidies, if any.[12] β is the benefit-reduction or phase-out rate for those subsidies, to the extent that they are means tested on the basis of AGI.

Families make choices about $\{c,n,h\}$, which are constrained by equation (2). The family budget constraint has three distinct portions. One portion is the most relevant for people who desire to be working full-time even in the face of the penalty (more details on preferences in Section IV). For them, the employer penalty is just another quasi-fixed cost and thereby encouraging them to substitute hours h for employment n. In effect, this person experiences the employer penalty as a tax on employment regardless of how many hours he works. For low values of P, this portion of the budget constraint is large and is the portion most commonly experienced in the population.

Another portion is relevant for people who desire to be working part time even without the penalty. They are not affected by the penalty and the household would have no incentive to adjust their behavior based on the size of the penalty p. For high values of the threshold P, this portion of the budget constraint is large and is the portion most commonly experienced in the population.

The third portion is the boundary or "notch" between the first two portions and is relevant for persons working full-time without the penalty but near the margin P. The penalty induces them to work part-time instead, and probably at a higher employment rate.

Because the overall budget constraint features these three possibilities, the employer penalty might either reduce or increase average hours worked per employee. In effect, the

[12] The quasi-fixed cost q includes forgone unemployment benefits (if any), which are taxable. g also reflects differences between marginal and average tax rates.

employer penalty is a tax on full-time employment because it is avoided by both part-time employment and non-employment.

The penalty for failing to provide any coverage is levied monthly at a rate of $167 per full-time employee (annualized that's $2,000), indexed for health cost inflation after 2014. Unlike employee wages and benefits, the penalty is not deductible for business income tax purposes.[13]

Part-time employees, defined to be anyone working fewer than thirty hours per week, are exempt from this penalty, as are the first thirty full-time employees. Employers with zero employees receiving subsidized coverage on the exchanges are also exempt. These exemptions complicate the measurement of the marginal cost of an employee and therefore the amount passed through to full-time employees. Take, for example, an employer not offering coverage and having 100 full-time employees on her payroll in the current and previous years.[14] None of her employees receives subsidized coverage on the exchanges. If she hires one more employee in the current year, and that employee receives an exchange subsidy, that one hire costs her $142,000 in annual penalties, plus health cost inflation applied to that amount. Or consider another employer not offering coverage and having 49 employees (all full time) on his payroll in the current year and expecting to employ 100 full-time workers next year. If he hires an additional employee this year, that changes his designation from "small employer" to "large employer" for the purposes of determining his employer penalty next year and the one hire thereby costs him $140,000 in penalties next year, plus health cost inflation applied to that amount.

The employer penalty puts new administrative burdens on exempt employers because they must prove they are exempt. Penalized employers also have to prove they calculated their penalty correctly, including proper classification of part-time employees and new hires. The administrative burdens on employers are large enough that the Obama administration twice delayed the implementation of the employer penalty, and with its second delay it noted the disproportionate burden put on smaller employers (United States Department of Treasury 2014).

[13] Sections 4980H(c)(7), as amended by the ACA, and 275(a)(6) of the Internal Revenue Code of 1986 specify that taxes imposed by Chapter 43 of the Internal Revenue Code—among which is the ACA's employer penalty—are nondeductible for the purposes of calculating a business' federal income tax.
[14] In this example and the subsequent example, "current year" refers to any calendar year 2016 or later.

Obviously there are other examples in which an employer not offering coverage has zero marginal penalty cost of hiring because the employer remains exempt, and administrative costs remain constant, even with an additional full-time employee. Three important marginal cost conclusions can be drawn from the penalty exemptions. First, among people working for employers not offering coverage, the employee-weighted average marginal penalty cost of hiring full-time workers far exceeds the average penalty payments per full-time employee. The difference between marginal and average cost arises because people who work for an employer on the margin of exemption have a positive marginal cost but a zero average cost, and because of the thirty-employee exemption. Second, economic theory alone does not tell us whether the average marginal penalty cost of hiring a full-time worker is more or less than $2,000 per year (adjusted for health cost inflation) and I do not have the data needed to make that determination. Third, the marginal penalty cost varies widely across employers even though the statutory penalty amount is common. The calculations in this paper assume that the marginal penalty cost is $2,000 (adjusted for health cost inflation) per full-time employee per year for any employer not offering coverage, and for the reasons noted above should be interpreted as underestimates of the amount of heterogeneity of the full-time employment taxes created by the ACA.

The dollar amount pZ shown in the budget constraint (2) is the amount that the employer has to reduce wages in order to pay a $2,000 penalty (plus health cost inflation). For an employer that pays business income tax at rate τ_b (state and federal combined) and employer payroll tax at rate τ_s, pZ is, before the health cost inflation adjustment, equal to:

$$pZ = \frac{2000}{(1-\tau_b)(1+\tau_s)} \tag{3}$$

which is greater than $2,000 for employers with positive net income.

C. The Family Budget Constraint: Employer Offering Coverage to Full-time Employees

Most people work for employers that offer health insurance to their full-time employees. Nevertheless, the ACA may apply an implicit full-time employment tax to them because of the

rules for the ACA's exchange subsidies. Among other things, the subsidies are a function of family size and composition. Let $0.7M$ denote a family's premium for the second-cheapest silver plan on the basis of its size and composition (before subsidies), M denote the associated expected medical expenditures (in the actuarial sense, including loadings), and $0.3M$ denote average out-of-pocket expenses for participants in the silver plan, with all three quantities expressed as a ratio to the federal poverty line (hereafter, FPL).[15] The annualized exchange subsidies are, as a ratio to FPL:

$$S(M,Y) = \max\{0, 0.7M - \pi(Y)Y\} + \delta(Y)0.3M \tag{4}$$

Y denotes the combined AGI ("family income") of the household head and spouse, expressed as a ratio to FPL. AGI is the amount that head and spouse show on their federal personal tax return as their wage and asset income for the calendar year.[16] $\pi()$ and $\delta()$ are the schedules specified by the ACA determining the cap on the share of AGI to be spent on premiums and the discount on out-of-pocket costs, respectively. Because the full premium is $0.7M$ and the ACA says that a family with AGI equal to Y does not have to spend more than $\pi(Y)Y$, the subsidy is $0.7M - \pi(Y)Y$ unless the full premium is already less than the spending cap.

In addition to the legal residency requirement and the eligibility criteria embedded in $\pi()$ and $\delta()$, the ACA also conditions exchange subsidy eligibility on a household's access to employer-sponsored insurance.[17] Specifically, during any month that a person is eligible for coverage through her current employer or through a family member's current employer, and the coverage is affordable,[18] he is ineligible for exchange subsidies. I refer to this as the "ESI criterion." Note that an offer of continuation coverage through a former employer, or through a family member's former employer, does not prevent an exchange plan participant from receiving

[15] The 0.7 represents the fact that silver plans have 70 percent actuarial value. Neither component of M includes expenses, such as cosmetic surgery, that are not covered by health insurance.

[16] The ACA slightly modifies the traditional AGI measure—its modification is called modified adjusted gross income or MAGI—but this paper does not examine the differences between AGI and MAGI.

[17] In addition, exchange subsidy recipients cannot be eligible for government-sponsored (minimum essential) coverage, must be enrolled in an exchange plan, cannot be enrolled in employer-sponsored coverage, and (if married) must file a joint tax return with their spouse. As noted below, the government-sponsored coverage criterion renders the elderly ineligible.

[18] Employer coverage is considered affordable if self-only coverage under the plan is no greater than 9.5 percent of household income (U.S. Government Printing Office, 77 FR 30380).

subsidies as long as the participant is not enrolled in the continuation coverage (U.S. Government Printing Office, 77 FR 30381).

For families whose member(s) work for employer that do not offer coverage, the ESI criterion is irrelevant, which is why the exchange subsidies are embedded in equation (2)'s g and β terms and are not given special attention for the purposes of examining the full-time employment tax faced by such families. But consider a single-earner non-elderly family in which the earner is offered affordable employer coverage if and only if he works full time. For him, the ESI criterion creates an implicit full-time employment tax because the exchange subsidies are foregone during periods of full-time employment. The budget constraint is (5):

$$\begin{aligned} c &= s(M,Y)[1 - I(h > P)n] + (1 - \tau_L)\{o + [wh - q]n\} \\ Y &= \frac{\{o + [wh - q]n\}}{FPL}, \qquad s(M,Y) = FPL\, S(M,Y) \end{aligned} \tag{5}$$

where, for simplicity, equation (5) ignores any untaxed government subsidies other than the exchange subsidies. As noted above, Y is AGI expressed as a ratio to the federal poverty line (FPL). S is the entire family's exchange subsidy as a ratio to the federal poverty line and s is the subsidy in dollar terms. The first term in the budget constraint is the subsidy that is received during the weeks of the year when the worker is either not employed or working part time. The second term is his AGI after taxes.

Collecting terms, the budget constraint (5) is in a form more readily compared with equation (2):

$$c = s(M,Y) + (1 - \tau_L)\left\{o + \left[wh - q - I(h > P)\frac{s(M,Y)}{1 - \tau_L}\right]n\right\} \tag{6}$$

If subsidies were independent of AGI (they are not, especially the exchange subsidies), then the budget constraints (2) and (6) would be isomorphic with each other, with equation (2)'s constant pZ serving the same function as $s/(1-\tau_L)$. More generally, a non-ESI worker with the budget constraint (2) and an ESI worker with the budget constraint (6) lose the same amount of after-tax income from (i) crossing the hours threshold P or (ii) changing their employment rate n if they

both face the same marginal earnings tax rate (inclusive of the earnings taxes implicit in any subsidies they receive) and $pZ = s/(1-\tau_L-\beta)$.[19] This is why I refer to the exchange subsidies as an implicit full-time employment tax in an amount equivalent to an employer penalty of $s/(1-\tau_L-\beta)$.[20]

The same constraint (6) applies to a married ESI worker with a working spouse if the spouse is not eligible for ESI. In this case, the spouse working without ESI can change employment status (i.e., cross the hours threshold P or leave employment all together) without affecting her eligibility, or her family's eligibility, for exchange subsidies as determined by the ESI criterion. The spouse would face a budget constraint like (2) if she were working for an employer that does not offer coverage to its full-time employees.

Unilateral work status changes have no effect on exchange subsidy eligibility for married families with more than one ESI-eligible worker. In effect, each worker in such a family faces a constraint like (6) but with $s = 0$.[21] The dependent workers and the elderly are in a similar situation; s is automatically zero for the elderly because of their eligibility for Medicare coverage. However, any dependent or elderly person working for an employer that does not offer coverage to its full-time employees faces the budget constraint (2).

[19] Appendix I has the proof and shows that the implicit marginal tax rate β has a somewhat different interpretation depending on whether the comparative static is hours per week (crossing the threshold) or the employment rate.

[20] At first glance, it might appear that my results for the ACA are at odds with Summers (1989) who concludes that mandated employee benefits do little to drive a wedge between labor supply and labor demand. But Summers was only referring to a transactions between employer and employee, and not transactions between the government treasury and labor market participants. If the employer penalty were paid to employees rather than the treasury, nonworkers were ineligible for the new subsidies, and part-time workers were ineligible, then the ACA's subsidies and penalties would look more like a mandated employee benefit.

[21] The exchange subsidies create incentives for coordinated changes in employment status by husband and wife, but those are ignored in this paper. Note that such incentives are roughly half of the incentives shown in equation (6) because two workers, rather than one, need to change employment status in order to obtain s. The behavioral responses are presumably less than half because a person on the margin between two employment statuses may be married to an inframarginal worker.

III. Determinants of the Size of the Full-time Employment Tax

The ultimate objective of this paper is to estimate the distribution of full-time employment taxes created by the ACA. This section takes the first measurement step, namely, to characterize the determinants of the size of the taxes.

A. The business-tax value of employee compensation

As noted above in connection with equation (3), a $2000 penalty is not the same as $2,000 in wages because only the latter is deductible from business taxes (and subject to employer payroll tax). The salary equivalent of the employer penalty depends on the employer payroll tax rate, which I assume to be $\tau_s = 0.0765$, and the employer's marginal business income tax rate τ_b. I assume that any for-profit private employer's marginal business income tax rate is equal to the sum of the statutory federal corporate income tax rate (35 percent) and the state corporate income tax rate, with the latter adjusted for the federal deductibility of state corporate income taxes.[22] The rate is adjusted for loss carry forwards as explained in Appendix II. I assume that government and private nonprofit employers have $\tau_b = 0$.[23]

I used the March 2012 Current Population Survey (hereafter, CPS) to assign each worker a probability of working for an employer not offering coverage to its full-time employees (hereafter, non-ESI employer). Appendix II gives the details. For each worker I calculated $2000/[(1-\tau_b)(1+\tau_s)]$ based on their state of residence and whether they were a private sector worker. Table 1 shows some of the results. The average salary-equivalent, weighted by the probability of working for a non-ESI employer, is $2,753 and the median is $3,025. The salary-equivalent for a nonprofit or government employer is only $1,858 because they do not pay business income tax. The highest salary equivalents among profitable corporate employers are almost $3,200 and occur in DC, IL, IA, MN, and PA where the highest corporate income tax rates are.

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[22] For states with a gross receipts or commercial activity tax instead of a corporate tax (as of 2014, those states are Ohio and Washington), I take the state rate to be zero. Texas has a one percent margin tax that allows employee wages as a deduction, so I assume a Texas state rate of 0.01. The other states' 2014 corporate rates are from Tax Foundation (2013). My data do not permit me to measure whether a person's private-sector employer is organized as a corporation, so I use the corporate rate for all private employers. Note that corporate rates are generally set near to the rates applicable to other business forms, such as S-corporations.

[23] Because the March CPS does not distinguish private sector employees according to whether their employer is a for-profit business, I randomly impute employer for-profit status (see Appendix II).

Note that the employer penalty is $2,000 for 2014, when it is not enforced, and is greater in subsequent years. It will be $2,084 in 2015 and increase with health cost inflation thereafter. The amounts shown in Table 1 are for a $2,000 penalty and therefore need to be scaled up proportionally in order to have estimates of the salary-equivalent of penalties in the years 2015 and beyond.

B. The work-hour equivalent of full-time employment taxes

A $2,000 penalty creates a different incentive for a high-wage worker than it does for a low-wage worker. I therefore attempt to convert penalty dollar amounts pZ into work-hour equivalents p, by which I mean the number of extra hours employees would have to work for free to compensate their employer for the penalty owed on their full-time work. This is not to say that the employer penalty is the responsibility of employees, just to gauge the economic significance of the penalty to the employment relationships affected by it.

The conversion factor Z needed to calculate the extra hours p depends on the way in which the extra hours were supplied. If they were supplied as longer weekly work schedules h, then the conversion factor would be $Z = w$. If they were supplied as a higher employment rate n, then the conversion factor would be essentially $Z = w - q/h$. I use the latter conversion factor because it is more readily measured in the CPS data, namely as the wages and fringes per hour worked.[24] For example, a private sector minimum wage employee needs to work about 8 hours per week, 52 weeks per year, for free in order to compensate his employer (subject to a 39 percent business income tax rate – recall equation (3)) for a $2,000 annual penalty because the federal minimum wage is $7.25 per hour and 8 is approximately equal to 2000/[52*7.25*(1–0.39)*(1+0.0765)].

One challenge for calculating hour-equivalent penalties is that the CPS has imperfect measures of hours, earnings, and therefore hourly earnings. The measurement errors would tend to exaggerate the heterogeneity of hourly earnings and thereby exaggerate the heterogeneity of the hour-equivalent penalty. By exaggerating the heterogeneity of hourly earnings, the ratio

[24] Presumably the optimal way to supply additional hours is a combination of both margins because, in practice, employers do not economize on quasi-fixed costs to such an extent that employees work 24 hours per day 365 days per year. This suggest that the ideal conversion factor is somewhere between w and $w - q/h$.

estimator of the average hour-equivalent penalty is biased upward, although I mitigate that bias (and potentially over-correct for it, because I do not censor the right tail of the measured wage distribution) by censoring measured wages at the federal minimum of $7.25.

As an alternative approach to measuring the hour-equivalent penalty, I take each CPS worker's log *Z* to be the fitted value from a regression of log average hourly compensation (including the value of employer contributions for health insurance) on indicator variables for state of residence and occupation; gender interacted with marital status, and parenthood; class of worker; and education indicators interacted with a quartic in age in a sample of full-time workers aged 20-64 in the March 2012 CPS.[25] The fitted values are censored below at the federal minimum wage of $7.25. By discarding wage measures among part-time, teen, and elderly employees, the demographic-wage approach gets closer to measuring the marginal wage *w*, but it fails to account for differences in human capital between full-time prime-aged workers and the rest of the workforce.

The "demographic-wage" approach understates the heterogeneity in wages because wages are not equal within demographic groups and occupations. As a result, using the demographic wage causes the ratio estimator to underestimate the average hour-equivalent penalty. I believe that this underestimation of the average hour-equivalent exceeds the overestimation (if any) by the ratio estimator that uses individually-measured wages because the residual variance in the log hourly compensation regression far exceeds available estimates of measurement error variance.[26] I suspect that the best estimate of the average hour-equivalent penalty is somewhere in between the two estimates based on demographic and individual wages, and probably closer to the latter even though that estimate is biased upward somewhat.

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[25] For workers reporting that they obtain coverage from their job, the value of employer contributions is the difference between the total premium and the worker contribution to those premiums. The former is estimated as the silver plan premium for family members covered by the plan, scaled by 83/70 to reflect the fact that silver plans have 70 percent actuarial values whereas employer plans average 83 percent (Gabel, et al. 2012). The worker contribution is assumed to be either 18, 23, or 28 percent of the total premium depending on whether one, two, or more than two family members are covered by the plan, respectively. The 18 and 28 percentages are from (Henry J. Kaiser Foundation and Health Research & Educational Trust 2012) for employee-only and family coverage, respectively.

[26] Bound, et al. (1994) find that errors in the measurement of log 1986 earnings by the Panel Study of Income Dynamics have a variance of about 0.02, as compared to the 0.28 variance of the residual from the regression used to project demographic wages. Unless the measurement error my sample is an order of magnitude greater, the Bound et al estimate suggests that the majority of the measured wage variation within demographic groups is true wage variation.

Both approaches convert wages to 2014 dollars and exclude the unincorporated self-employed due to the difficulty with measuring their wages. Figure 1 shows the results conditional on working for an employer that does not offer coverage to its full-time employees. The orange histogram is based on individually-measured wages and the other on demographic wages. The penalty is for 2016 and is assumed to have increased 3.9 percent, relative to wages, beyond what it was in 2014. As reported in Table 2, the average penalty based on the individual (demographic) wage is 4.3 (3.9) hours per week, respectively.[27] The density spike above 8 hours per week reflects workers earning $7.25 per hour (or less) and working for profitable private employers in states with corporate income tax.[28] Thus, although a four-hour weekly penalty is a central estimate of the employer penalty from the perspective of people working for employers that will be penalized or be threatened with penalties, there is significant variation around that penalty.

Figure 1 shows histograms of workers facing the employer penalty – meaning that pZ appears in their budget constraint as shown in equation (2). Many of the workers facing the penalty will not pay it because they will work part time, and estimating their frequency would require estimates of the behavioral responses to the employer penalty. As noted in the introduction to this paper, Figure 1 is intended as a starting point for behavioral analysis, and does not reflect equilibrium results.

C. Exchange plan premium estimates and the value perceived by participants

Equation (4) shows that the amount of the exchange subsidy depends on the amount spent on covered medical expenses, both by the plan and by the patient in the form of deductibles, copayments, etc. I do not attempt to estimate a distribution of subsidies that reflects the distribution of health conditions, doctor visits, etc. Instead I look at the variability associated with family composition and age as represented by the prices of silver plans on the exchanges. Because silver plans are supposed to cover 70 percent of covered medical expenses on average,

[27] The median of the hour-equivalent penalty based on individual wages is 3.9 hours per week (see also Table 2). Because the true distribution is unlikely symmetric, the median is a biased estimate of the mean but may be of independent interest or taken as a perhaps conservative estimate of mean.

[28] The density spike at about 7.9 hours per week reflects workers at or below $7.25 per hour and working for private employers in states without corporate income tax.

with the rest financed by patient out-of-pocket charges, I take covered medical expenses *m* to be the premium divided by 0.7. I estimate the silver plan premium from two versions of the national Kaiser premium calculator, which I reference as KFF1 and KFF2,[29] and project them to 2016 by assuming that they grow a cumulative 3.9 percent in excess of wages (the same growth factor that I use above for the employer penalty) between 2014 and 2016.

A comparison of budget constraints (2) and (6) shows that both the exchange subsidies and employer penalty are tied to full-time work. However, one difference is that a worker has to go to the exchange and purchase a plan in order to avoid the withholding of her subsidy whereas the penalty can be avoided without any contact with the exchange. To the extent that going to the exchange and purchasing a plan is costly, an exchange subsidy that costs the government, say, $3,000, does less to discourage full-time work than a penalty that yields the government $3,000 because the cost of exchange participation has to be netted against the amount of the subsidy. Throughout this paper, I refer to the difference between the amount of the subsidy and the cost of exchange participation as the "value" of the exchange subsidy (to the worker and his family).

I refer to the cost of exchange participation as the "exchange features discount." Exchange plans have higher deductibles than the average employer plan (before cost-sharing subsidies), and many states' exchange plans limit participants to narrower provider networks than employer plans do (Hancock 2013). In theory, ACA regulations and participant cost sharing (with after-tax dollars) may be encouraging more economical health spending on the exchanges, and the narrower provider networks may merely reflect improved value for the premium dollar. Moreover, the more economic health spending may be especially attractive to the unemployed and part-time workers who would like to be covered but have limited cash flow. But it is also possible that ACA regulations reduce the value of health spending on the exchanges, especially as perceived by persons who would otherwise have employer coverage. For example, sellers may distort their offerings—perhaps with narrow provider networks—in order to discourage more expensive participants from joining their plan. The ACA may also disproportionately require

[29] As explained by Mulligan (2014, Chapter 4), KFF2 has the better estimates of 2014 silver plan premiums, but they are thought to be temporarily low because of, among other things, the ACA's temporary subsidies for exchange plans that lose money. This paper primarily uses KFF1, which has premiums that are 16 percent greater than KFF2 and approximately 16 percent less than comparable employer-sponsored plans.

exchange plans to offer benefit options that some of the participants value at less than what the benefits cost (e.g., contraception benefits from the perspective of participants who are not trying to avoid pregnancy). It is also possible that those familiar with employer coverage fail to appreciate the advantages of exchange plans simply because the latter are less familiar, or because exchange plans are stigmatized as a form of "welfare."

For the purposes of quantifying incentives to change employment status, the cost of exchange participation is the amount of the discount, if any, on an exchange plan that a part-time or non-employed person would need to be indifferent between participating in an exchange plan and the next best alternative coverage option. Suppose, for example, that a full-time worker with employer coverage were forced to work part-time. If, in this forced part-time situation, he would voluntary pay full price for an exchange plan rather than going uninsured and rather than continuing his coverage (under COBRA or related statute), then he has revealed that exchange participation has no additional cost relative to the next best alternative. In this case, every dollar that the ACA pays to reduce his premium below full price is a subsidy to part-time work because the subsidy reduces an amount that he would voluntarily pay. However, if instead the worker strictly prefers, say, to be uninsured than to pay full price, then the first dollar of exchange subsidy is not a subsidy to part-time work because he would not take up a subsidy of just one dollar.

The value v of the exchange subsidy is therefore:

$$v(M,Y) = \max\{0, 0.7M(1-\theta) - \pi(Y)Y\} + \delta(Y)0.3M \qquad (7)$$

where θ is the exchange-features discount, expressed as a percentage of the silver premium $0.7M$.[30] The other parameters are the same as those in equation (4). Throughout the paper I show results for two exchange features discounts: a zero discount and a discount $\theta = 25$ percent of the premium. The 25 percent discount is based on Mulligan's (2014) analysis of coverage patterns of the unemployed and take-up of the American Recovery and Reinvestment Act's temporary program of premium assistance. However, the ACA's exchange plans are unique and still evolving – both in terms of objective plan features and consumer perceptions – so it is

[30] I treat θ as a constant across persons, but a richer model would let it vary across persons and/or be a function of age and other demographic characteristics.

currently impossible to have a precise estimate of the exchange features discount. Under the weak assumption that exchange subsidy take-up will be less than one hundred percent, failing to discount the exchange subsidies would exaggerate the effects of the subsidies on employment status.

D. The sliding scale for exchange subsidies

Table 3 displays the parameters that describe the schedules π() and δ() from equations (4) and (7). Each row is a household income interval relative to FPL beginning at the income amount indicated in the first column. The second column shows the premium charge for a family with income at the bottom end of the interval, expressed as a percentage of household income.[31] The premium percentage increases smoothly within the interval, and as it crosses the next income threshold, with the exceptions (noted in the last column) of (1) the 1–1.33 interval where the percentage is constant at 2 percent and jumps discretely to 3 percent and (2) the 4+ interval where there is no premium cap (the premium jumps from 9.5 percent of income to the full premium). For example, a family with AGI equal to twice the poverty line ($Y = 2$) has its 2014 family premium capped at 6.3 percent of income. In terms of equation (4), this means $\pi(2) = 0.063$ for calendar year 2014. A family with AGI equal to 225 percent of the poverty line ($Y = 2.25$) has its 2014 premium capped at 7.175 percent of income because 2.25 is halfway between 2 and 2.5 and 7.175 is halfway between 6.3 and 8.05. Each premium cap is greater in years 2015 and beyond according to the degree to which health insurance premiums increase more than national income.

Plan participants pay their designated premium, and then their healthcare providers are reimbursed amounts that are expected to be less than (typically 70 percent of) total covered medical expenses, with the remaining costs "shared with" (that is, charged to) plan participants as various out-of-pocket costs such as deductibles, co-payments, coinsurance rates, etc. The third column of the table shows the "cost-sharing" discount families receive as a function of their household income. This discount is a step function of income, jumping down to 57 from 80 percent at 1.5 FPL, to 10 percent at 2 FPL, and then down to zero at 2.5 FPL. For example,

[31] The premium charge is for the second-cheapest silver plan. Participants can choose a more expensive plan at their own expense, or choose a less expensive plan in order to reduce the premium they pay. Participants receive the same premium assistance regardless of which exchange plan they choose.

people at 1.4 FPL on a silver plan can expect (in the actuarial sense) to have their premiums cover 70 percent of medical expenses. Of the remaining 30 percent, 6 percentage points would be paid by the participant and the remaining 24 percentage points paid by taxpayers in the form of a cost-sharing subsidy for the plan participant.

The exchange subsidies shown in equation (4) are a function of AGI Y and expected family medical expenses M. Family medical expenses net of the subsidies are therefore the difference between M and the subsidies shown in equation (4), which is itself a function of Y and M. Figure 2's solid lines graph the net expense function for two selected values of M: the blue line corresponds to the relatively low value of M associated with a one-person household age thirty, and the red line corresponds with a higher level associated with a couple age fifty with two children. Values of M associated with families in between these two in terms of size or member age would make a subsidy schedule between Figure 2's solid lines. The horizontal axis measures family income (Y) and the vertical axis measures the payments. Both schedules reach a plateau indicating the full health payments without subsidies. For a high M family like the one shown in red, the plateau is reached at 400 percent FPL because at that point the family ceases being eligible for subsidies. For a low M family like the one shown in blue, the plateau is reached at lower incomes because the full premium itself is considered affordable for families at, say, 350 percent FPL.[32] The amounts shown in Figure 2 are not discounted for exchange features.

E. The correlation between exchange subsidies and hourly earnings

Household heads and spouses with high hourly earnings tend to be in high-income families who are required by the ACA to pay more of their health expenses. However, household heads and spouses with high hourly earnings also have larger and older families that have more health expenses. Consider, for example, the sample of non-elderly heads and spouses of households between 100 and 400 percent of the poverty line working for an ESI employer, but without a spouse working for an ESI employer. This is the group of workers for whom exchange subsidy eligibility hinges only on their employment status (although some of them qualify for a

[32] Algebraically, a plateau at income levels below 400 percent FPL reflects the max term in equation (4) evaluating to zero.

zero subsidy because exchange plans are deemed affordable even at full price). A regression of their annualized exchange subsidy forgone on their demographic group hourly compensation, the number of related people in the household, and age of the worker yields a wage coefficient of –$181, a family size coefficient of about $2,400, and an age coefficient of $217. As expected, holding constant family size and age, means-tested subsidies are less for high-wage workers because their family income tends to be greater. However, high-wage workers are older and tend to have larger families, both of which increase the amount of the subsidy holding family income constant. The simple correlation between demographic-group wage and the exchange subsidy foregone is positive in this sample.

IV. The Distribution of Full-time Employment Taxes

The first step is to estimate the number of workers who will not have one of the ACA's FTETs in their budget set, and characterize their situations vis-à-vis the law's eligibility rules. I then estimate the 2016 distribution of FTETs, measured in hour equivalents, among workers who will face them. I conclude by showing how the prevalence and size of FTETs is correlated with worker characteristics.

A. ESI employees facing no tax

Many people working for employers that offer coverage face no FTET. Table 4 lists them, in mutually exclusive categories, according to the reason that their FTET (from the ACA) will be zero. The estimates are based on the worker characteristics as measured in the March 2012 CPS and employer characteristics (for both worker and spouse) imputed as explained above and in Appendix II. The most common reason is being in a household outside the eligible income range for subsidies 1-4 FPL: 41 percent of workers and aggregate weeks worked. Elderly and dependent workers from 1-4 FPL families supply 7 percent of workers and weeks. Another 5 percent are supplied by non-elderly heads and spouses working for ESI employers but not having exchange subsidy eligibility on their employment status solely because their spouse works full time for an ESI employer. One percent of workers satisfies all of the eligibility

criteria for exchange subsidies, except the ESI criterion, but would get no subsidy because their silver plan premium is sufficiently low in comparison to their income.

B. The distribution of FTETs among those with positive FTETs

Figure 3 shows the results for calendar year 2016 conditional on facing a positive implicit FTET from the ACA. It is only for ESI workers and therefore does not include the employer penalty. One histogram is based on individually measured wages (orange) and the other on demographic wages (black outline). These are histograms of workers facing an implicit FTET – meaning that s appears in their budget constraint as shown in equation (6). The s term is scaled by the tax factor $(1-\tau_L-\beta)$ with the non ACA marginal earnings tax rate (reflecting personal income and payroll taxes) assumed to be 25 percent and the ACA marginal earnings tax rate β taken to be the product of the within-person average phase-out rate from equation (4) and the fraction of a year that an average full-time non-elderly employed ESI head or spouse is not on a payroll and can thereby get exchange subsidies.[33] As reported in Table 2, the averages of the two histograms are 10.5 hours per week (orange) and 9.7 hours per week (black outline), respectively.

Many of the workers facing the FTET will not pay it because they will work part time, and estimating their frequency requires estimates of the behavioral responses to the employer penalty. As noted in the introduction to this paper, Figure 3 (and Figure 1) is intended as a starting point for behavioral analysis, and does not reflect equilibrium results.

Figure 3 uses the full value of the exchange subsidies, without any discount for exchange features. As noted above, the implicit tax is sometimes less than the full value of the subsidy withheld because the subsidies require exchange plan participation and some workers would not pay full price for an exchange plan even when they were not eligible for any other coverage. Figure 4 therefore repeats the exercise in Figure 3, but subtracts 25 percent of the full premium from the amount of the premium subsidy, unless the premium subsidy is less in which case the value of the premium subsidy is assumed to be zero (that is, the histogram shows $v/(1-\tau_L-\beta)$, with v from equation (7), rather than $s/(1-\tau_L-\beta)$ as shown in Figure 3). For clarity, the respondents

[33] As explained by Mulligan (2014, Chapter 5), the within-person average phase-out rate is $(0.7M - \pi(1) + \delta(1)0.3M)/3$ and smooths out all of the notches and cliffs between 100 and 400 percent of the federal poverty line.

from Figure 3 with a nonzero subsidy amount but a zero value are omitted from Figure 4, which shows the distribution conditional on positive value. If those omitted zero-value respondents had been included in Figure 4, the averages of the distributions would be 7.5 hours per week (orange) and 6.8 hours per week (black outline), respectively (see also Table 2).

Although Figure 4's medians are similar to Figure 1's, Figure 4 has remarkably more heterogeneity because, as measured, the dollar value of the exchange subsidy varies more than the employer penalty's salary equivalent does. The annual subsidy forgone by ESI workers can range from just a few dollars to $15,000, or more. A subsidy equivalent to 10 hours per week is well within the support of Figure 4's distributions, whereas the employer penalty is never more than nine hours per week.

Although uncommon, it is even possible for the subsidy to exceed the income that could be generated by 40 hours of work per week, 52 weeks per year. Take a couple in their 50s with three young adult children at home. The full silver plan premium for their family could easily be $20,000 per year, not to mention the deductibles and copayments that go along with that plan. The husband works full-time for a non-ESI employer earning $30,000 annually and the wife works part-time at an ESI employer for $11 per hour. With these employment arrangements – especially that the wife continues to work too few hours to qualify for her employer's health coverage – the family is at 140 percent of the poverty line and qualifies for $21,000 in annual premium assistance and cost-sharing subsidies. In order to earn an extra $21,000 after taxes, the wife would, at $11 per hour and a 25% marginal earnings tax rate, have to work an extra 49 hours per week, 52 weeks per year. Because most of these instances involve married couples with related adults and thereby strategic grey areas in terms of the definition of the household and the reporting of dependents' income, my calculations censor the hour equivalent of the implicit FTET at 40 hours per week.[34]

[34] In order to further mitigate the contribution of large households to the overall results, I: (i) treat unmarried partners of the household head as his or her own one-person household, and (ii) exclude from my exchange subsidy calculations any adults living in someone else's household as an unrelated person (e.g., a roomer or boarder), except that for health insurance purposes I treat foster children as related children (e.g., a number of foster parents in the CPS have their foster children on their ESI plan). Because a few married couples are supporting near-elderly (and thereby medically expensive) relatives such as parents or adult siblings, I have also experimented with capping the premiums of related and dependent adults at $5,000 per year (note that a silver plan for a near-elderly adult could be as much as $9,000), but the situations are rare enough that such a cap reduces my average subsidy estimates by only one percent.

Figure 5 shows the results with both types of FTETs included: the "explicit" FTET from the employer penalty and the implicit FTET from the exchange subsidies' ESI criterion. These are histograms of workers facing a FTET – meaning that either *pZ* appears in their budget constraint as shown in equation (2) or *s* appears in their budget constraint as shown in equation (6). The *pZ* and *s* terms are measured as noted above. The resulting distribution is bimodal, with almost 90 percent of the observations at or below the 8-hour mode.

C. FTETs by demographic group

Table 5's first column displays the coefficients from a linear probability regression. The dependent variable is facing a full-time employment tax (under the rules for calendar year 2016) and the independent variables are various demographic characteristics. The sample is all workers in the March 2012 CPS. More educated workers are less likely to face one of the ACA's FTETs because they are more likely to work for an employer offering coverage and because they are more likely to earn above 400 percent of the poverty line. Married people and elderly workers are less likely because they tend to be eligible for other coverage (through a spouse's employer or, in the elderly case, Medicare). Note that facing a FTET is different than being affected by it – for example, the elderly are especially likely to work part time even without a FTET and thereby would not adjust their behavior in response to one.

The second column is a regression of the FTET dollar amount on the same demographic characteristics, using the same sample and including zeros for workers who do not face a FTET. The third column is a regression of the FTET hourly amount on the same demographic characteristics, using the same sample. For the purposes of Table 5, all three dependent variables are net of a 25 percent exchange features discount. One interesting pattern is that the age profile of FTET amounts is u-shaped among the nonelderly, and then sharply lower for the elderly. The near elderly (ages 55-64) have relatively high incomes, but they also have high medical expenses and the latter delivers them the largest foregone subsidy among all of the age groups. This pattern is less pronounced for the hour equivalent of the FTET, but still the near elderly have the largest average hour equivalent among all ages 25 and over. By either measure, the average amount of the FTET is least for the elderly.

V. Behavioral Effects of FTETs

An important reason for measuring taxes is to understand their behavioral effects. The purpose of this section is to briefly discuss some of the effects of the ACA's FTETs on employment, hours, and productivity, building on the budget constraints from Section I. It is limited to long-run analysis in the sense that market participants are assumed to understand and adapt to the new taxes, that market prices are assumed to be flexible, and workers are mobile. I begin with a discussion of the relationship between FTETs and employment taxes, largely because the two have much in common and employment taxes have been widely studied. I then discuss effects of the FTETs on weekly hours per employee and on output per hour.

A. Behavioral effects of employment taxes

Suppose for the moment that hours per week h were a fixed characteristic of a worker, perhaps based on her occupation or family situation, so that the only real choice for workers is the employment rate n. In this case, part-time workers with $h \leq P$ have no I term in their budget constraint (2) or (6), regardless of what they choose, and thereby are affected by FTETs only indirectly through full-time workers. Full-time workers always have the I term equal to one and for them the FTET is just an employment tax and thereby another example of a quasi-fixed cost of employment. Unemployment benefits are an example of an (implicit) employment tax, and one that has been well studied.[35] Unemployment benefits reduce labor supply both by discouraging people from returning to work (Krueger and Meyer 2002) and by encouraging layoffs (Topel and Welch 1980). In the long run, these two types of reactions to unemployment benefits can be summarized in terms of the wage elasticity of labor supply (Mulligan 2012).

Like other labor supply shifters, the effect of unemployment benefits on equilibrium employment and wages depends on (i) the size of the benefit, (ii) the degree to which the labor supply shift is concentrated in specific industries or demographic groups, and (iii) the wage elasticities of labor demand and supply. A uniform unemployment benefit (applicable to all sectors and workers) would be fairly neutral across sectors and groups, so that the relevant labor demand curve is the aggregate demand for employees. In the long run, this demand curve is

[35] One difference between the ACA's FTETs and unemployment benefits is the treatment of people out of the labor force: they are eligible for the ACA subsidies but not the unemployment benefits.

thought to be highly wage elastic, which means that an employment tax primarily affects the amount of employment and has little effect on equilibrium wages (measured as employer cost inclusive of taxes).[36]

Table 2 shows that the average FTET is 5 or 6 hours per week among those who face it, and they are 46 percent of the workforce (the residual from Table 4). Assuming for the moment that weekly hours are a fixed characteristic of employees, about a quarter of the 46 percent find the FTET to be irrelevant because they are part-time workers. That makes the overall average employment tax created by the ACA's FTETs equal to 1.9 hours per week, or about 4.8 percent of the average full-time work schedule. If taxes on work were already 25 percent, then the ACA's FTETs would be reducing the after-tax share from 0.750 to 0.702, which is an impact on average labor supply of 0.067 log points in the wage dimension. Assuming that aggregate labor supply shifts reduce employment and aggregate hours worked rather than affecting wages, the ACA's FTETs reduce aggregate hours by 0.067 times $\eta/(1+\eta)$, where η is the Frisch wage elasticity of aggregate labor supply. For example, with $\eta = 0.6$, the impact on aggregate hours and employment is –0.025 log points. Note that neither the 0.067 nor the –0.025 includes the labor supply effects of the ACA's implicit income tax.

To the degree that the employment tax is targeted at specific sectors and employees, the aggregate employment effect depends on the fraction of workers targeted and the wage elasticity of labor supply of both the targeted workers and all other workers. The composition of the employment effect also depends on whether the taxed workers are complements or substitutes with each other in the labor market and the degree to which employees can shift between taxed and untaxed categories. Recall that the ACA disproportionately taxes large employers, low-skill employees, near-elderly employees, and employees heading large families. The ACA also differentially taxes employers offering coverage, although the direction of the difference varies by type of employee.

I presume that, in the long run, employees are free to choose employers on the basis of size and benefit offerings. This does not mean that everyone avoids the implicit and explicit

[36] The wage elasticity of labor demand is less in the short run because, among other things, capital and technology are fixed in the short run (Acemoglu, Autor and Lyle 2004, p. 505). But in the long run capital and technology can adjust to match the supply of labor. For example, tens of millions of women entered the workforce since the 1980s with a long-run effect on the general level of wages that is small enough to be difficult to detect. Also note that the aggregate demand for labor is different from the demand for a specific group's labor.

employment taxes, just that employees who avoid them pay for the privilege of doing so in the form of lower wages. In effect, all employees of the same skill, age, work schedule, and family composition face an employment tax regardless of the type of employer they have, as if the ACA's employment taxes had been uniform by type of employee in an amount equal to the average employment tax.[37] Thus, for the purposes of understanding aggregate employment and hours effects, sector- and group-specific employment taxes have a lot in common with uniform employment taxes.

Of course, a sector-specific tax reduces the size of the taxed sector. However, the fact that employment shifts away from the taxed sector does not mean that the aggregate employment effect is zero. As long as a few workers remain on the margin between the taxed and untaxed sectors, workers in the untaxed sector are induced to work less because the tax reduces their wages.[38]

B. Offsetting effects on hours per employee

Presumably hours per employee h, and not just the employment rate n, can respond to the ACA's FTETs. At the same time, the weekly-hours response must be limited because we do not observe employers hiring tiny numbers of employees at very high weekly hours, despite the fact that the quasi-fixed costs of employment would reward such behavior. Sherwin Rosen developed models of this tradeoff, and concluded that, holding constant aggregate hours, the cost of supplying weekly hours was increasing at the margin and that equilibrium weekly hours reflect a tradeoff between the increasing hours cost and avoidance of quasi-fixed costs.[39] Jobs with high quasi-fixed costs (such as jobs subject to employment taxes) would be worked longer hours than low-quasi fixed cost jobs.

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[37] This is the theory of equalizing differences (Rosen 1986), and has been an important part of tax incidence theory (Harberger 1962). Mulligan and Gallen (2013) use the theory of equalizing differences to examine the employment and productivity effects of the ACA's sector-specific employment taxes.

[38] This is why I disagree with the Congressional Budget Office's (2014, p. 120) conclusion that "the cost of forgoing exchange subsidies operates primarily as an implicit tax on employment-based insurance, which does not imply a change in hours worked." Because of compensating differences in the labor market, their conclusion does not follow from CBO's (correct) premise that "the tax can be avoided if a worker switches to a different full-time job without health insurance (or possibly two part-time jobs) or if the employer decides to stop offering that benefit." In other words, the avoidance behaviors cited by CBO have costs that reduce the net benefits of employment generally.

[39] See Rosen (1968) and Rosen (1978).

Because the ACA's FTET is essentially an employment tax for an employee that is unwilling to work part-time, one effect of the FTETs is therefore to *increase* weekly work hours among workers who continue to work full-time schedules, which by all accounts is a large majority of employees, and decrease the employment rate. In Rosen's model, the more convex are the costs of supplying weekly hours, the less is the size of the effect of each unit of employment taxation on h.

Some workers will change from full time to part time (as defined by the threshold P) as a consequence of the FTETs. Absent the FTETs, many of them were working $h > P$, at a lower employment rate, in order to save on the quasi-fixed costs of employment but the FTETs more than offset that savings. Thus, FTETs reduce weekly hours for some workers and increase them for others.[40] The relative size of these groups depends on the threshold P. Mulligan (2014, Chapter 6) finds that, with $P = 29$ hours per week, the combined effect of the two groups is to leave weekly hours per employee essentially unchanged from what it would be without the ACA. Although we should remember that the ACA's FTETs affect the distribution of weekly hours, the fact that they may hardly affect the average suggests that the h-fixed analysis above may tell us a lot about the average employment and aggregate hours effects of the FTETs.

C. Productivity

The ACA's FTETs have at least three effects on measured productivity. First, because they are more significant for low-skill workers, the FTETs likely change the composition of the workforce. All else the same, a workforce that is more intensive in high-skill workers is more productive. Second, the fact that the FTETs are not uniform reduces total factor productivity as the labor market sacrifices output as it reallocates labor in order to economize on the FTETs. This is the kind of "misallocation" productivity effect emphasized by Restuccia and Rogerson (2008) and Hsieh and Klenow (2009).[41]

[40] Also notice from equations (2) and (6) that FTETs create a nonconvex budget set, which create an incentive for convex-preference consumers to trade in lotteries (i.e., gamble) to smooth out the nonconvexities. In my model, the employment rate variable n serves many of the same purposes.

[41] Total factor productivity can affect aggregate employment and hours, although the direction of the effect is unclear because wealth and substitution effects are in opposite directions. The composition effect does not affect labor supply, though; it is merely an artifact of measuring productivity without fully adjusting for labor quality.

People and businesses may misreport hours worked (or manipulate their measurement, or at least be careful to avoid accidentally over-reporting work hours) so that the employer avoids a penalty or the employee remains eligible for exchange subsidies. Misreporting hours and incomes is not necessarily an alternative to genuine adjustments of employment and incomes, especially if misreporting has limits and the ACA's income or employment taxes are still experienced by workers who misreport. But the misreports would give the (false) impression that workers have become more productive, because productivity is measured as output per reported hour worked.

Full-time workers could also react to the ACA by splitting their work time between two employers and being considered part-time employees of each. As it is, the model in this paper already says that n may increase for workers who move from full-time to part-time as a consequence of FTETs. The increase would reflect multiple-job holders if the model variable n were interpreted as job-weeks rather than person-weeks worked, with each worker contributing to job-weeks according to the number of jobs held during the week. In this case, n should be measured from the U.S. Labor Department's employer survey rather than its household survey, because the latter does not distinguish between multiple-job holders and single-job holders for the purpose of measuring employment during the reference week.

VI. Conclusions

Both the ACA's employer penalty and its exchange subsidies create full-time employment taxes (FTETs), by which I mean taxes paid by full-time employees that are avoided by both part-time employment and non-employment. The exchange subsidies create an implicit tax in the sense that full-time employees pay it in the form of foregone subsidies. Almost half of employees are directly affected by the new FTETs in the sense that they would pay a FTET by working full time, their employer pays an FTET as a consequence of their employment, or that their employer is dis-incentivized from hiring full-time employees because of the threat of FTETs.

The dollar amount of the FTETs varies across workers based on their employers' tax situation; the size, age, and composition of families; and perceived costs of participating in the

ACA's new exchanges. The implicit FTET is especially variable across workers. The means-tested subsidies (creating the implicit FTET) are less for high-wage workers because their family income tends to be greater. However, high-wage workers are older and tend to have larger families, both of which increase the amount of the subsidy holding family income constant. The second effect is large enough that the simple correlation between demographic-group wage and the exchange subsidy foregone is positive.

Among workers directly affected by FTETs, the average FTET amount is equivalent to the income that would be earned in almost six extra work hours per week, 52 weeks per year. This is enough to depress aggregate work hours more than two percent, even though it does not include the implicit income taxes also created by the ACA. The FTETs have offsetting effects on work hours per employee.

The FTETs are not the same as income taxes. The taxes examined in this paper are avoided by changing work schedules – fewer weeks per year in a full-time position – whereas income taxes are avoided by having less income. The ACA includes implicit income taxes (Mulligan 2014, Chapter 5), which are in addition to the taxes examined in this paper.

At first glance, the results may seem at odds with Massachusetts' experience with the "Romneycare" 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 by Romneycare and the ACA are qualitatively and quantitatively different from each other. The Romneycare employer penalty was proportional to total work hours at an employer, rather than 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 Romneycare and the ACA created subsidized health plans for persons who could not obtain coverage from their employer, Romneycare hardly introduced any new implicit employment tax because its subsidized coverage had a number of limitations and had been preceded by longstanding health assistance programs for the unemployed.

The longstanding exclusion of ESI premiums from payroll and personal income taxes is itself an instance of a full-time employment subsidy. That is, full-time workers can use the exclusion to avoid taxes but non-workers and uncovered part-time employees cannot. The

exclusion is relevant for understanding coverage decisions under the ACA,[42] for measuring the combined total of ACA and non-ACA incentives, 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 interest in this paper. My purpose is to compare the labor market with the ACA FTETs to how the labor market would be without the ACA FTETs and to calculate the impact of the ACA FTETs as the difference between the two. In both of those cases, ESI premiums are excluded from payroll and personal income taxation and thereby are hardly relevant for understanding the impact of the ACA on the incentives to work full-time. Because the ACA FTETs are not creating or eliminating the ESI tax exclusion, the tax exclusion is not a significant part of the ACA-FTET contribution to overall incentives to work full-time.

VII. Appendix I: Comparing the Exchange Subsidy to the Employer Penalty

Recall that the worker budget constraint is either (2) or (5), depending on whether or not he works for an ESI employer, respectively. Those constraints are repeated below:

$$c = g + (1 - \tau_L - \beta)\{o + [wh - q - I(h > P)pZ]n\} \tag{2}$$

$$c = s\left(M, \frac{o + [wh - q]n}{FPL}\right)[1 - I(h > P)n] + (1 - \tau_L)\{o + [wh - q]n\} \tag{5}$$

In order to prove the claim from the main text that, as a full-time employment tax, an exchange subsidy in the amount $s/(1-\tau_L-\beta)$ is equivalent to an employer penalty in the amount pZ, take the difference between the two equations' right-hand side:

$$g - s\left(M, \frac{o + [wh - q]n}{FPL}\right) + I(h > P)\left[s\left(M, \frac{o + [wh - q]n}{FPL}\right) - (1 - \tau_L - \beta)pZ\right]n - \{o + [wh - q]n\}\beta \tag{8}$$

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

In order to examine the consequences of crossing the hours threshold P, evaluate the expression (8) at two work schedules: $h + \Delta h < P$ and $h > P$. The two evaluations are the same if (9) and (10) hold:

$$s\left(M, \frac{o + [wh - q]n}{FPL}\right) = (1 - \tau_L - \beta)pZ \tag{9}$$

$$s\left(M, \frac{o + [w(h + \Delta h) - q]n}{FPL}\right) - s\left(M, \frac{o + [wh - q]n}{FPL}\right) = -wn\beta\Delta h \tag{10}$$

which are the conditions noted in the main text. In particular, the left-hand side of equation (10) is the exchange subsidy gained by the ESI employee as a consequence of incrementing his AGI by $wn\beta\Delta h < 0$ and the right-hand side is the subsidies gained by the non-ESI worker by incrementing his AGI by the same amount.

A similar set of conditions imply that both types of workers face the same employment tax. To see this, differentiate (8) with respect to the employment rate n:

$$\begin{aligned}[wh - q]\{[1 - I(h > P)n]S' - \beta\} \\ + I(h > P)\left[s\left(M, \frac{o + [wh - q]n}{FPL}\right) - (1 - \tau_L - \beta)pZ\right]\end{aligned} \tag{11}$$

where S' is the phase-out rate of exchange subsidies with respect to AGI (recall that $s = S\,FPL$). The expression (11) shows that the marginal tax rate condition for equivalency on the employment margin is $\beta = [1 - I(h>P)n]S'$, which is the effect of calendar year AGI on the exchange subsidies combined for the parts of the year that the worker is eligible.

VIII. Appendix II: Imputation of employer benefit offerings and business income tax rates

A. Health insurance offerings

I assign each employee in the CPS a probability of working for an employer that does not offer coverage to its full-time employees. For nonelderly household heads and spouses working with usual work schedules of at least thirty-five hours per week, this probability is initially set to either zero or one depending on whether they are covered through their job or not, respectively. Federal government employees are assigned a probability of zero. Among samples of the elderly, dependents, or part-time workers, this would be a poor indicator of type of employer because the elderly are typically insured by Medicare, dependents are typically insured by a family member's policy, and part-time workers are typically not offered coverage even while their full-time coworkers are. For the elderly, dependents, and any worker working fewer than thirty-five hours per week, I assign a probability that their full-time coworkers are not offered ESI as the fitted value of a probit equation with dependent variable equal to the non-ESI-employer indicator noted above, estimated in the sample of nonelderly household heads and spouses working at least thirty-five hours per week.[43] All of the workers in the CPS sample have their probability rescaled by the same factor (0.64) so that the sample-average probability is 26 percent, which is my estimate (see below) of the fraction of workers under the ACA who will work for an employer that offers coverage to its full-time coworkers.

By all estimates, only a minority of employees work for employers that do not offer coverage to their full-time employees. The CBO estimates that, in 2008, they were 27 percent of all workers (Congressional Budget Office 2007). Using Census Bureau data, Janicki (2013) estimates 29 percent for 2010. Using the Medical Expenditure Panel Survey (MEPS), Carroll and Miller (2011) estimate 13 percent for 2011. The simple average of these three is 23 percent, but I put somewhat less weight on the outlying MEPS estimate[44] and therefore estimate that 24 percent of workers before the ACA were working for an employer that did not offer coverage.

[43] The independent variables are indicator variables for detailed industries and the interactions between indicators for employer size more than one hundred employees and work schedule at least forty hours. Part-time nonelderly heads and spouses that have ESI are assigned an indicator of zero, regardless of the fitted value that the probit equation assigns them.

[44] The Congressional Budget Office (2007) uses a variety of sources, including the MEPS and Census Bureau data. Therefore my weight on MEPS is a bit larger than CBO's, but still much less than 50 percent.

Whatever the historical percentage, it is likely at least a few employers will drop coverage because of the ACA or because of ongoing health cost trends. I therefore assume that 26 percent of workers will have employers that do not offer coverage to their full-time employees. This 26 percent is the basis for the rescaling factor noted in the previous paragraph.

B. Business income tax rates

In any given year, about one quarter of private-sector for-profit employee compensation is paid by corporations that have no net income for the year.[45] Without loss carryforwards or carrybacks, or mergers of corporations, such employers would realize no tax advantage from writing off employee compensation, or anything else. In this case, the ACA's employer penalty is valued in the same way that it is for public sector employers: a $2,000 penalty is equivalent to $1,858 in employee salaries.

However, corporations can carry losses forward, and C-corporations can carry them backwards, and in effect apply deductions taken during a year without net income against the revenues earned in a year with net income (the deductions do not earn interest, though, and are therefore less valuable when carried forward). Cooper and Knittel (2006) use a sample of corporations with losses in 1993 to estimate the distribution of the amount of time (up to ten years), if ever, that the corporations in the sample obtain a corporation income tax advantage from their 1993 loss. They do not weight by employees and do not measure the use of tax losses when a corporation ceases to exist through merger (or even the frequency of mergers among corporations that cease to exist, which I assume to be one-half when weighted by 1993 employment).

Lacking any merger data, I assume that, among the corporations with 1993 losses that eventually merge with another corporation, the distribution of time to merger is the same as the time-to-tax-advantage distribution measured by Cooper and Knittel. As a result, I have Table 6's employee-weighted distribution of employer business income tax rates. Public sector employees, which are directly measureable in the March CPS, have an employer business income tax rate of zero because their government employer does not pay business income tax.

[45] According to the *IRS Statistics of Income* 25 percent of employee compensation reported by C-corporations, S-corporations, and partnerships in 2011 were reported by businesses without net income. The percentage varies from year to year, e.g., 20 percent in 2006 and 31 percent in 2001.

Employees of nonprofit businesses are in a similar situation, except that they are not separately identified in the March CPS from other private-sector employees. I therefore randomly sample nine percent of private-sector employees and assume that their employer is nonprofit.[46]

Seventy-five percent of the remaining private-sector employees (that is, sixty-eight percent of private-sector employees) are assumed to have employers that owe business income tax for the year and are therefore assigned the full tax rate (federal and state, recognizing the deductibility of state taxes) as indicated by the scaling factor of one shown in the table's final column. Employers with losses that are carrying the loss back – their employee-weighted frequency among the twenty-three percent of private sector employers with losses is taken from Cooper and Knittel – are also getting an immediate tax benefit and are therefore also assigned a scaling factor of one. The remaining private sector employees are allocated, based on the Cooper and Knittle frequencies, to carryforwards of one to twelve years and assigned a scaling factor equal to the interest rate factor for the relevant horizon.[47]

For all employees, their employer's value of a dollar of wage deduction is assumed to be the scaling factor times the full business income tax rate (federal and state combined, accounting for the federal deductibility of state taxes).

[46] Salamon et al (2012) report that ten percent of private sector employees in 2010 were working for not-for-profit businesses, but that was significantly above the percentage before the recession. I therefore take nine percent as an estimate of the percentage that will apply in the year 2016.

[47] Cooper and Knittel cannot look beyond the tenth year. I therefore assign the losses among the remaining active corporations to the twelfth year.

Table 1. The salary equivalent of a $2,000 employer penalty

Among employers not offering health coverage, and assuming that private-sector employers pay the top corporate rate applicable to the state of employment.

Mean	$2,753
Median	3,025
Non-profit and government employers	1,858
Mean among profitable corporate employers in DC, IL, IA, MN, PA	3,175

Notes: DC, IL, IA, MN, PA are the highest corporate tax rate states. For the purposes of calculating the median and mean, all private sector employers are assigned the corporate rate.
After 2014, the employer penalty exceeds $2,000. It is expexted to increase 3.9% more than wages between 2014 and 2016. i.e., without wage inflation the 2016 employer penalty would be $2,077 (rather than $2,000) and the mean salary equivalent would be $2,859 (rather than $2,753).

Table 2. Estimators of the various hour-equivalent FTETs

Type of full-time employment tax	Estimator of the average hour equivalent		
	Mean ratio, with individual wage in the denominator	Mean ratio, with demographic wage in the denominator	Median ratio, with individual wage in the denominator
Employer penalty, conditional on employer not offering coverage	4.3	3.9	3.9
Full amount of exchange subsidy, conditional on positive subsidy	10.5	9.7	7.5
Value of exchange subsidy (25% features discount), conditional on positive subsidy	7.5	6.8	4.7
Either FTET (25% features discount), conditional on positive FTET	5.9	5.4	4.3
Either FTET (25% features discount), entire population	2.7	2.5	0.0

Note : The hour equilavent of a tax is the number of hours to be worked each week in order to generate enough employee compensation to pay the tax.

Table 3. Sliding Scale Exchange Subsidies

as a function of household income for the calendar year

Income as a ratio to FPL	Percentage of income owed as premium	Discount on out-of-pocket cost (jumps when crossing thresholds)	Notes on interval
1	2%	80%	premium percentage is constant on this interval, jumping at 1.33
1.33	3%	80%	
1.5	4%	57%	
2	6.3%	10%	
2.5	8.05%	0%	
3	9.5%	0%	premium percentage is constant on this interval
4	9.5%	0%	
4+	full premium	0%	premium jumps here because the premium cap is eliminated

Notes : (a) The first column indicates the bottom threshold of the income interval.
(b) Exchange participants pay a premium that is the minimum of the full premium and the applicable percentage from the second column. The premium assistance is the amount, if any, that the premium is less than the full premium.
(c) Income percentages change linearly between income thresholds unless otherwise noted.
(d) FPL = federal poverty line.
(e) Income percentages for 2015-18, and any year thereafter in which the exchange subsides are less than 0.504% of GDP, are indexed to the excess of health cost inflation over income growth.

Table 4. ESI workers free from implicit full-time employment taxes

	Percentage of:	
	All workers	All weeks worked
Family AGI is outside the 1-4 FPL eligible range	41%	41%
Family AGI is in the eligible range, but individual is an elderly or dependent	7%	7%
Family AGI is in the eligible range, but spouse works full time for ESI employer	5%	5%
None of the above, but silver plan premium would already be affordable	1%	2%

Note : The categories above are mutually exclusive. The omitted categories are non-ESI workers and ESI workers who will face a FTET. Overall ESI workers supply about 3/4ths of all workers and weeks.

Table 5. Full-time employment taxation by demographic group

Sample is 93,477 workers from the March 2012 CPS
Dollar amounts are 2014 dollars. Coeffient standard errors in parentheses.

	OLS regression dependent variable		
	ACA FTET is positive	Annual dollar amount of 2016 FTET	Weekly hour equivalent of 2016 FTET
Constant (less than age 25, no HS education, dependent, unmarried male, not a parent)	0.48	1,843	4.10
	(0.01)	(64)	(0.09)
Age 25-34	-0.06	-133	-0.93
	(0.01)	(36)	(0.05)
Age 35-44	-0.08	-271	-1.37
	(0.01)	(38)	(0.06)
Age 45-54	-0.09	-109	-1.33
	(0.01)	(38)	(0.06)
Age 55-64	-0.07	542	-0.57
	(0.01)	(40)	(0.06)
Age 65+	-0.22	-890	-1.40
	(0.01)	(55)	(0.08)
Some high school, but not graduated	-0.04	-398	-1.12
	(0.01)	(63)	(0.09)
High school diploma	-0.09	-691	-2.28
	(0.01)	(55)	(0.08)
Some college, but not graduated	-0.14	-1,021	-3.05
	(0.01)	(55)	(0.08)
College graduate	-0.27	-1,687	-4.30
	(0.01)	(56)	(0.08)
Advanced degree	-0.35	-2,082	-4.83
	(0.01)	(59)	(0.09)
Household head or spouse	0.29	1,172	2.05
	(0.01)	(31)	(0.05)
Female	0.00	-50	0.43
	(0.00)	(19)	(0.03)
Married	-0.13	-281	-0.75
	(0.00)	(23)	(0.03)
Parent	0.09	809	0.95
	(0.00)	(22)	(0.03)
Adjusted R^2	0.08	0.08	0.10
Std. error of the regression	0.48	2,817	4.15

Note : All three dependent variables measure FTETs net of a 25 percent exchange-features discount, when applicable. The hour equivalent uses the demographic wage.

Table 6. Imputation of employer business income tax rates

Scaling factors are used to multiply statutory federal and state rates according to each worker's state of residence.

Employer sector			
Public vs. Private	Subsector	Randomization factor	Scaling factor
Public Sector	N/A	N/A	0
Private Sector	Nonprofit	0.0900	0
Private Sector	For-profit w/ net income	0.6825	1
	For-profit, loss carryback	0.0344	1
	For-profit, loss carryforward 1 year	0.0105	0.930
	For-profit, loss carryforward 2 years	0.0240	0.865
	For-profit, loss carryforward 3 years	0.0138	0.805
	For-profit, loss carryforward 4 years	0.0202	0.749
	For-profit, loss carryforward 5 years	0.0086	0.697
	For-profit, loss carryforward 6 years	0.0064	0.648
	For-profit, loss carryforward 7 years	0.0082	0.603
	For-profit, loss carryforward 8 years	0.0045	0.561
	For-profit, loss carryforward 9 years	0.0030	0.522
	For-profit, loss carryforward 10 years	0.0022	0.485
	For-profit, loss carryforward 12 years	0.0490	0.420
	For-profit, losses never used	0.0426	0

Private-sector employee summary	
0.81	Average scaling factor
0.13	Share assigned scaling factor of 0

Note : Private-sector employer types cannot be identified in the worker data, so workers are randomized according to the factors shown in the table. Carryforwards are discounted 7.5 percent per year.

Figure 1. The employer penalty's hour-equivalent distribution

based on two hourly wage measures

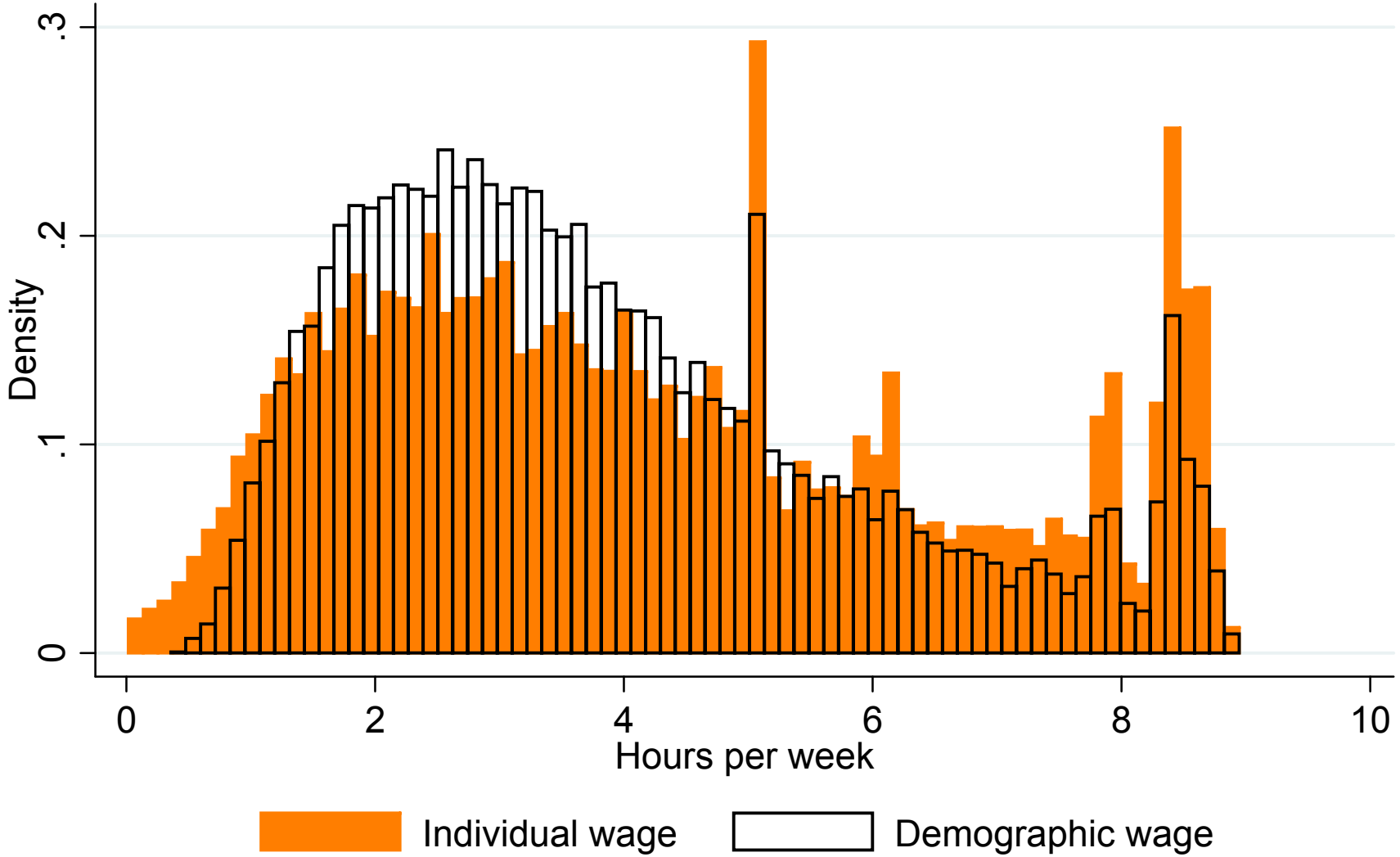


Figure 2. 2016 health payments as a function of family income and policy type

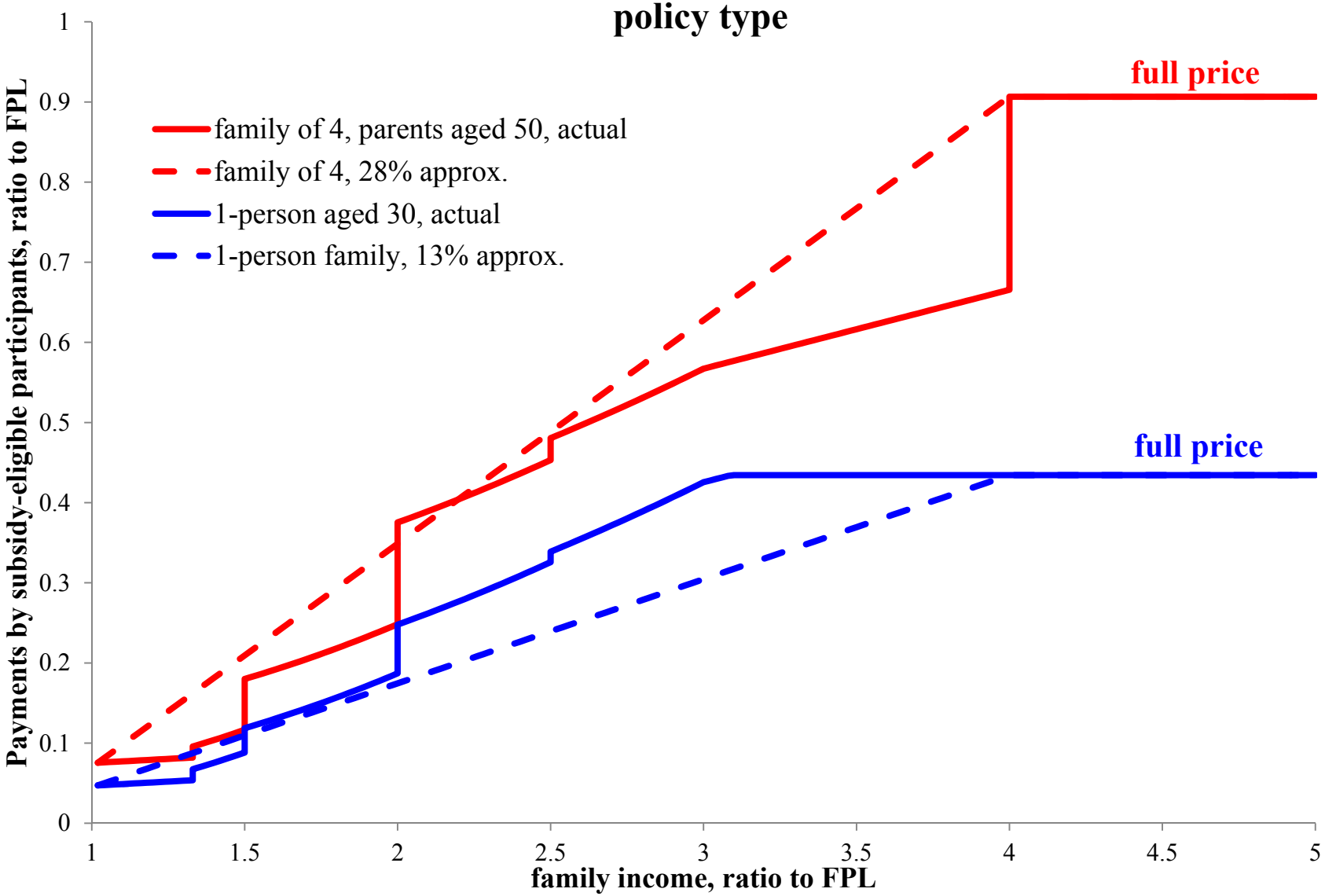


Figure 3. The implicit FTET's hour-equivalent distribution

based on two hourly wage measures and no exchange-features discount

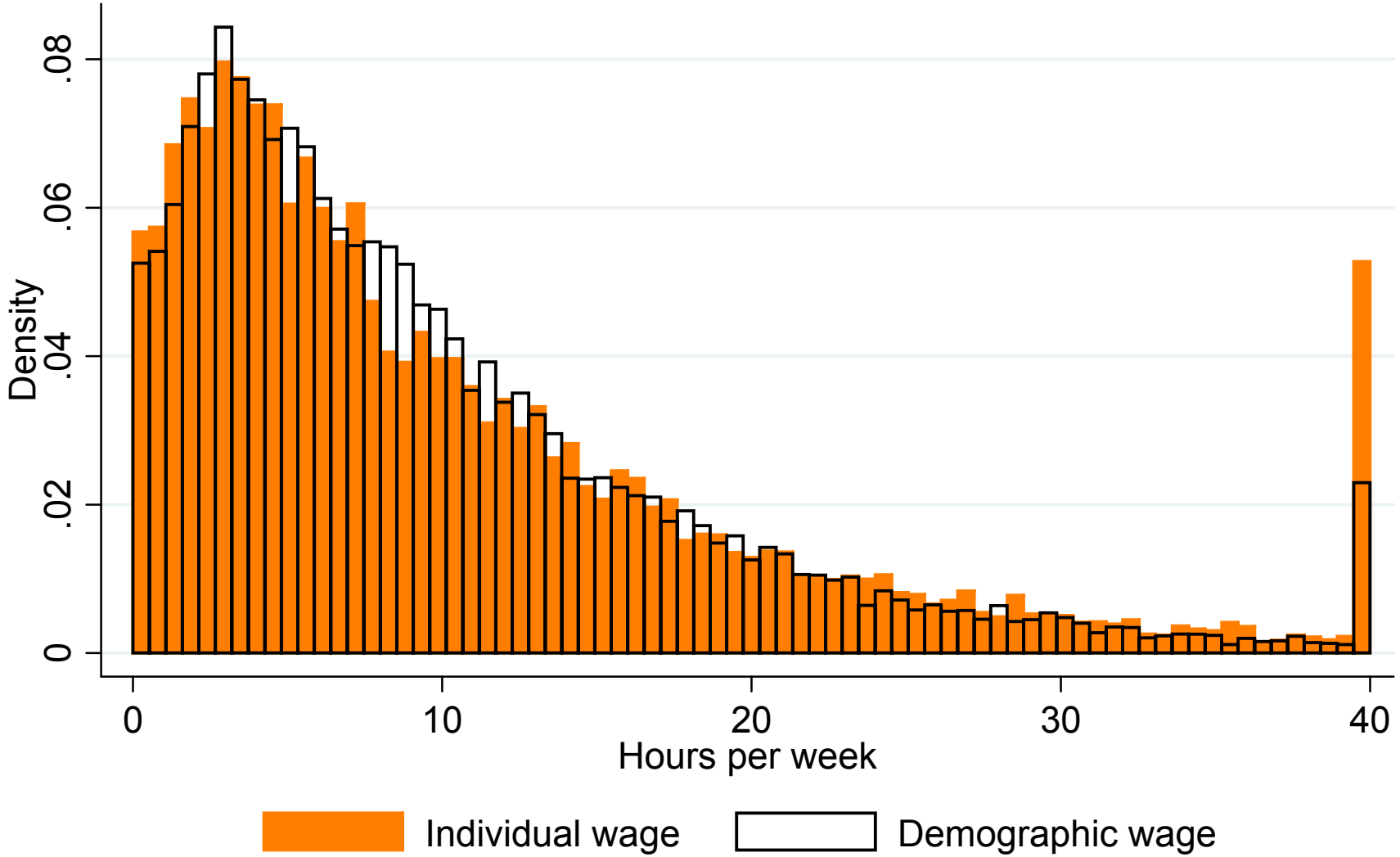


Figure 4. The implicit FTET's hour-equivalent distribution

based on two hourly wage measures and a 25% exchange-features discount

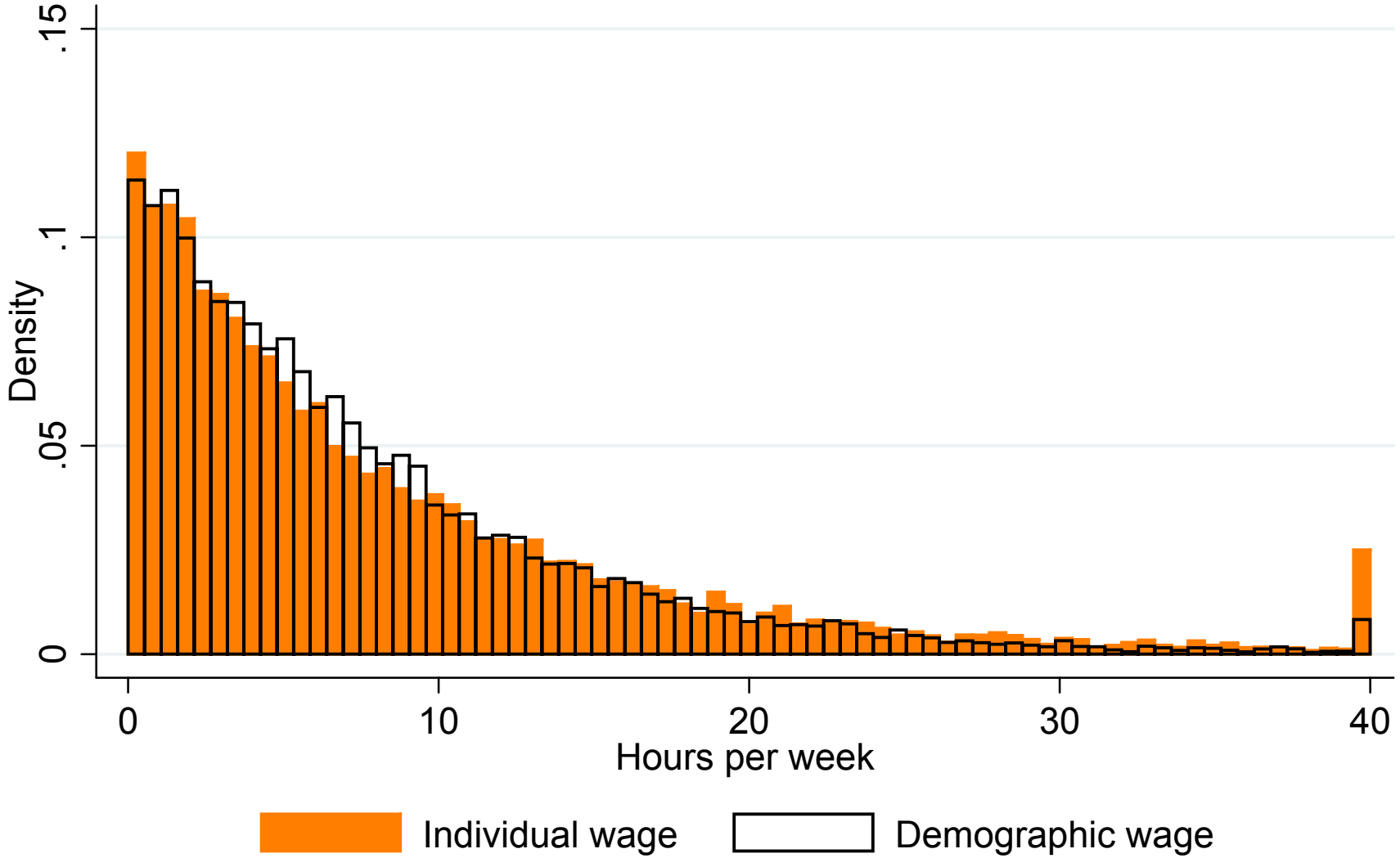
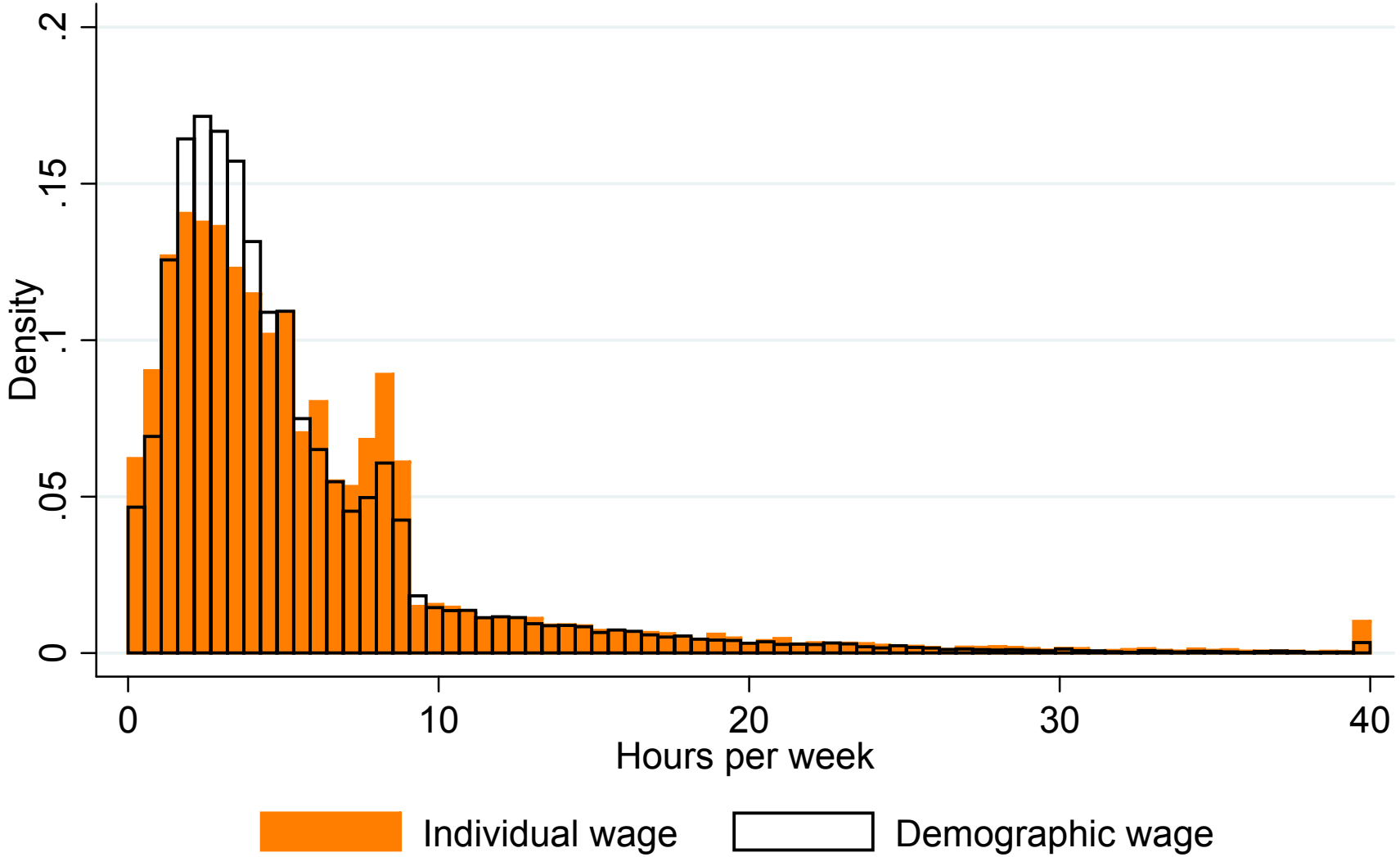


Figure 5. The FTETs' hour-equivalent distribution

based on two hourly wage measures and a 25% exchange-features discount



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