INDEPENDENT CONTRACTORS IN LAW AND IN FACT:
EVIDENCE FROM U.S. TAX RETURNS

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Federal tax law divides workers into two categories depending on the degree of control exercised over them by the service purchaser (i.e., the firm): employees, who are subject to direct supervision; and independent contractors, who operate autonomously. Worker classification is consequential, determining how the income tax is administered and what it subsidizes, as well as which non-tax regulations pertain, such as workplace safety and anti-discrimination protections. The Internal Revenue Service and other federal agencies have codified common law agency doctrine into multi-factor balancing tests that are challenging to apply and costly to enforce. Yet almost nothing is known about how firms actually classify workers, and how such classification relates to the control they exercise.

To bridge this gap between legal principles and legal practice, this Article introduces a novel empirical analysis using a comprehensive data source—all digitized U.S. income tax filings. This analysis establishes several new empirical facts. First, using six measures informative of firms’ control over workers, I show that employees and contractors have grown more similar over the last two decades. Second, I show that a firm is more likely to reclassify an employee as a contractor in response to changes in financial incentives created by policy.

These results suggest a growing misalignment between how workers are classified and the economic substance of firm-worker relationships, a trend that is more pronounced for lower-earning workers. Put another way, two otherwise identical workers, with relationships that feature a similar degree of control, may end up being classified differently due to, among other factors, their firms’ financial incentives. After providing a framework for interpreting my findings, I discuss the key normative questions raised by the apparent erosion of the legal boundary delimiting contractors and employees.

PRELIMINARY. PLEASE DO NOT CITE OR CIRCULATE.

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INTRODUCTION

The U.S. tax code divides workers into two categories: employees and independent contractors.\(^1\) Significant tax and regulatory consequences turn on this distinction. How a worker is classified determines, for example, which taxes she must pay, how she must pay them, and which tax subsidies she enjoys.\(^2\) And the consequences of this classification extend well beyond the tax system. Tort liability, firms’ regulatory compliance costs, protection under major anti-discrimination statutes, and access to key elements of the social safety net—to name only a few examples—all hinge on a worker’s status.\(^3\)

The legal distinction between an employee and a contractor traces its roots back to the common law principle of agency and the concept of control. An employer is a principal who has the right to control the work of her agent, the employee.\(^4\) In contrast to an employee, a person who controls her own work—a contractor—operates as a distinct principal, not as an agent. Several areas of private law incorporate the principal-agent dichotomy to align actors’ incentives. For example, consider the doctrine of respondeat superior in tort law, which holds that parties can be liable for the acts of their agents.\(^5\) The doctrine extends a financial penalty to the principal if her agent causes harm to a third party in the course of performance. This creates an incentive for the principal to exercise control over the agent in order to ensure the work is done with sufficient care to avoid causing inefficient harm.\(^6\)

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1 Officially, the IRS recognizes four categories of business relationships between individuals providing services and their employer: independent contractor, employee, statutory employee and statutory non-employee. However, statistics from a 2010 GAO study found that these last two categories are used infrequently. IRS, Independent Contractor Defined, (May 20, 2017), https://www.irs.gov/businesses/small-businesses-self-employed/independent-contractor-defined; IRS, Statutory Nonemployees, (May 22, 2017).

2 Examples of all three of these differences abound in the Internal Revenue Code. For example, contractors are not required to pay the federal unemployment insurance tax (FUTA), a payroll tax. Pub. L. No. 83-591, 68A Stat. 439 (originally enacted as Title IX of the Social Security Act, 9 Stat. 639; now codified as amended at 26 U.S.C. §§ 3301-3311). And, while employees are subject to employer withholding, contractors must make quarterly estimated tax payments. I.R.C. §§ 3401, 3402, 3501 et seq. (setting out employer withholding obligations); I.R.S. Publ’n No. 505, Tax Withholding and Estimated Tax 2018, https://www.irs.gov/pub/irs-pdf/p505.pdf (providing guidance to contractors regarding quarterly estimated payments); IRS, Estimated Taxes, https://www.irs.gov/businesses/small-businesses-self-employed/estimated-taxes. The two most prominent examples are the purchase of health insurance and retirement savings plans; even if contractors have the same statutory incentives, in practice, employer sponsored vehicles are often effectively tax-subsidized to a greater extent, in part due to market structure. For detailed discussion of how access to tax-system delivered social insurance may differ by classification, see Shu-Yi Oei & Diane Ring, Tax’s Workplace Shift, Boston College Law School Legal Studies Research Paper No. 506 (Feb. 2019).


4 Restatement (Third) of Agency Section 7.07(3)(a) (“an employee is an agent whose principal controls or has the right to control the manner and means of the agent's performance of work”).


6 Note that the socially efficient outcome is achieved when the agent takes actions to prevent harm in accordance with the reasonable-actor standard to which her employer is subject (i.e. such an internalization solves the “principal-agent” problem of incentive misalignment). This does not necessarily mean that the agent behaves in a way that minimizes harm in an absolute sense—the rule that would induce such behavior is generally thought to be welfare inferior to the
But how is a multi-faceted concept like control measured, and how do firms determine whether it exists in sufficient quantity to make one classification more appropriate than another? Like other complex doctrinal line drawing problems in tax law, this classification must discretize a continuum of service contracts, ranging from employees economically dependent on a single firm that exercises full control over their work, to autonomous independent contractors with many clients and significant scope for entrepreneurial opportunity. Traditionally, such tests were codified with reference to the characteristics that commonly distinguish one type from another, such as the four-factor test distinguishing corporations from partnerships on the basis of such factors as “infinite life” and “centralized management.” But in his early and influential article in this literature, David Weisbach warns against the use of such “platonic notions” as the basis for drawing tax lines, arguing instead for drawing lines that maximize efficiency by minimally distorting individuals’ behavior. Yet there remain numerous examples of lines in tax law that rely on factors that are easily manipulated, inducing taxpayers to change their behavior in response to the line. The codified “line” between contractors and employees appears to share much in common with the lines that Weisbach disparages.

It is not obvious that firms have a preference for one classification or the other. Though employment relationships often have associated regulatory costs, the optimal arrangement for a given firm-worker relationship depends on market conditions and features of the firm’s production process. An alternative way to frame the question of which classification is appropriate is as a question about the appropriate location of a firm’s boundary. As first observed by Ronald Coase, economic activity can take place either within a firm or on the market; if imperfect information raises the cost of transacting in a market, then the activity is more efficiently performed within the firm. Whether a firm decides that work should be done by an employee (internally) or by a contractor (externally) may hinge on similar considerations. When a firm values what greater control can provide—better performance measurement, a desire for workers to perform multiple tasks—it may tend to hire employees to perform the work in-house, rather than contractors.

“reasonable actor” standard, because, in the former, aggregate compliance costs (to minimize harms) exceed the benefits to harm reduction.


8 See Weisbach, supra note 3.

9 These considerations exist independent of a regulatory regime that layers compliance costs, subsidies, protections, and evasion opportunities (or lack thereof) onto employee status. While these additional costs (or benefits) may change the nominal wage, it is not clear that the private sector would prefer one type of relationship to another in all contexts. See, generally, Ronald H. Coase, *The Nature of the Firm,* 4 ECONOMICA, 386-405 (1937).

10 Subsequent work in the literature on optimal firm size has identified three characteristics of transactions considered critical for making this determination: frequency, uncertainty, and asset specificity, the opportunity cost of ending a relationship. The greater is each of these, the more likely the work is to take place within the firm. Specific examples of the employee-contractor distinction have been studied previously. See, generally, Oliver E. Williamson, *Credible commitments: Using hostages to support exchange,* 83 AM. ECON. REV. 519-540 (1985).

11 For example, Erin Anderson and David Schmittlein consider electronic parts companies that hire their own sales staff and those that contract with third parties. In this example, firms tend to hire their own sales staff when individual performance is difficult to measure and when activities complementary to sales, such as providing customer support, are valuable to the firm. See Erin Anderson and David C. Schmittlein, *Integration of the sales force: An empirical examination,* 15 RAND J. OF ECON. 385-395. See also Erin Anderson, *The salesperson as outside agent or employee: a transaction cost analysis,* 4.3. MARKETING SCIENCE 234-254 (1985).
Under current law, the IRS and other federal agencies codify the employee-contractor line using multi-factor balancing tests that involve as many as 20 purportedly distinct factors, no combination of which is fully determinative of a worker’s status. Due to the factors’ subjectivity and the lack of a formula for using them to determine a worker’s status, these tests create intrinsic indeterminacy: two workers facing essentially similar economic and relational circumstances may end up being classified differently, opening the door to de facto electivity in how a firm selects a worker’s status. But how much flexibility these tests provide to firms remains an open question, as is the appropriate policy response if substantial flexibility is undesirable. Yet despite the critical significance of the employee-contractor distinction, we have essentially zero empirical evidence about the extent to which firms are constrained by these multi-factor tests in how they characterize workers.¹²

In this paper, I conduct a novel empirical analysis to examine how workers are classified for tax purposes in practice. The paper makes two positive contributions. First, I explore the extent to which firms’ classification of workers relates to control, and how this relationship has evolved over time. Second, I measure whether firms classify workers as contractors in response to policy changes that make contractor status more attractive to firms. To conduct these analyses, I rely on a comprehensive dataset that has not previously been used to study this issue: the universe of U.S. individual income tax filings. Using these data, I analyze how employees and contractors differ on six characteristics that describe their relationship with firms: income dependence, number of payers, distance to payer, tenure, compensation volatility, and deduction-taking. I argue that these measures are proxies for behavioral, relational, and financial control—the key criteria in determining appropriate legal characterization. Then, I conduct a causal analysis to measure how a firm’s classification decision changes in response to a policy that makes contractors less costly to the firm than employees.

My descriptive analysis yields three distinct findings: first, in the 2016 tax year, the average employee and the average contractor were indistinguishable on the measures of control that I have identified; second, employees and contractors have converged in these measures since 2001; and finally, low-income contractors and employees are significantly more similar to each other than their high-income counterparts. For example, most employees and contractors exhibit a similar degree of income dependence, have a similar number of payers, and are located a similar distance from their payers. And while contractors tend to have shorter tenures with firms and a greater degree of compensation volatility than do employees, these gaps have narrowed substantially over the last 15 years.

I also find evidence that how a firm classifies a worker depends on the firm’s financial incentives for doing so. To do this, I take advantage of a feature of Medicare’s eligibility rules that treats employers offering health insurance to their employees differently depending on their size. When an employee at a small firm turns 65, her employer-provided health insurance pays second to Medicare, saving the firm money. When an employee at a large firm turns 65, however, her employer-provided health insurance continues to pay first, creating an incentive for the firm to reclassify the worker as an independent contractor. Comparing the likelihood that an employee at a given firm is reclassified as a contractor after she turns 65, separately for small and large firms, I find that when the cost of retaining an employee rises, a firm is more likely to classify an existing employee as a contractor. While in economic terms the magnitude of this effect is modest, so too is the incentive: it is no great leap to infer that firms may behave similarly when faced with much larger financial incentives that exist throughout the code.¹³

¹² See Section II.B, infra.
¹³ One such financial incentive is that contained within the Affordable Care Act, which requires firms with more than 50 full-time employees to provide employer-sponsored health insurance to all employees or face tens of thousands of dollars in fines. The localized nature of this bright-line threshold (e.g. at 50 full-time employees), in conjunction with
These results suggest that the line separating employees and contractors is blurry rather than sharp; workers facing a similar degree of control may, depending on how a firm applies the multi-factor balancing test, end up on either side of it. And the distributional consequences of this phenomenon are unlikely to be neutral: the similarities between employees and contractors are much more pronounced for low-income workers who, along with female workers, have experienced the largest growth in contractor income since 2001. Paradoxically, these contractor relationships are the ones most likely to resemble traditional employee relationships, but without the labor protections and other benefits associated with the latter.

A better understanding of how firms classify workers is particularly timely, if not urgent, for two reasons. The underlying structure of the labor market and key provisions of the tax code applying to contractor income are in flux. Platform firms in the “gig” economy have vastly diminished the entry costs to self-employment, while technological innovations are changing the manner in which firms monitor employees and the effective size of the labor market. Additionally, a significant change introduced in the recent tax reform legislation allows contractors and other pass-through taxpayers a generous deduction on their business income, which many commentators speculate could fundamentally change the tax calculus of contracting for a significant population of taxpayers.

An adequate understanding of how firms use the existing dichotomous classification framework is a necessary prerequisite to developing alternatives.

In its final section, this Article offers a basic framework for interpreting these results and discusses the normative questions they provoke. Several hypotheses may explain—and several policy responses may address—the observed convergence in characteristics of control between employees and contractors. For example, increased uncertainty about the location of the legal boundary between employees and contractors could be remedied by harmonizing the multiple sets of criteria that currently delineate it. Alternatively, if firms are strategically misclassifying workers, then reducing their incentive to do so may be an appropriate policy response. More broadly, I argue that this convergence suggests the need to re-assess the dichotomous treatment of workers by the income tax system depending on their classification. If employees and contractors increasingly resemble one another, then the tax system, by treating these two groups differently, can engender very real differences in tax outcomes and access to the social safety net, a consequence that may be increasingly without a rational basis. However, the extensive interdependency between tax and non-tax tests and case law may render drawing a new line solely for tax purposes impracticable. I consider the implications of my results for existing reform proposals, and the lessons that can be drawn from the theoretical literature about legal design.

the hefty cost of non-compliance, create powerful incentives for firms to reduce the number of full-time employees to locate below the threshold. One attractive way to accomplish this re-location is to substitute contractors for workers, who, in the absence of the incentive, would be classified as employees.


16 I.R.C. § 199A

This paper is organized as follows: Section I provides background on worker classification in the U.S., including its origins, implications for workers and firms, and existing literature studying this topic. Section II describes the origin and features of the U.S. tax filing data used for both the descriptive and causal analyses. Section III describes the six proxy measures and then asserts three findings based on distributional and time-trends evidence. Section IV explores a causal context in which firms are incentivized to re-classify employees in response to discontinuous financial incentives. Section V discusses the policy implications for tax treatment of labor income of the current and potential alternative approaches to worker classification. The final section concludes.

I. BACKGROUND ON WORKER CLASSIFICATION IN THE U.S.

This section provides additional detail on the legal distinction between employee and contractor relationships, and discusses the tax and regulatory consequences that follow from this distinction. There are large differences in the tax system’s treatment of income, the applicability of labor protections, and access to social insurance programs that depend on how a worker is classified.

A. Common law origins of the “employee” standard

The legal distinction between an employee and a contractor is not native to tax law, but originates in common law principles of vicarious liability. Consider the doctrine of respondeat superior, under which parties can be liable, or legally responsible, for acts of their agents.\(^\text{18}\) The establishment of an employer-employee relationship for this purpose depends on the extent to which the purchaser of services controls, or has the right to control, how the work is completed, such as whether or not the purchaser provides tools or dictates the timing and sequencing of the work’s completion.\(^\text{19}\) The underlying logic is one of incentive alignment—the doctrine extends a financial penalty for causing harm to the party with power to instruct and supervise the agent to ensure the work is done with sufficient care to avoid causing harm.

Two structural features of this doctrine merit brief mention. As a legal standard, rather than a legal rule, the distinction created by this doctrine is determined ex-post, after services have been rendered. This does not mean that promulgation of the distinction as a standard rather than a rule is necessarily less efficient, or even inherently more complex.\(^\text{20}\) However, ex-post creation of the law tends to increase costs borne by individuals, who must expend resources and effort to predict the legal characterization of their contemplated transaction, and tends to be costlier to enforce, in part because it requires the enforcer to give meaning to the law within each factual context.\(^\text{21}\)

A second feature concerns its normative content with respect to tax law. While the doctrine clearly has normative value in the context of tort law, it is less obvious how assigning different tax consequences to otherwise identical service contracts on the basis of how much control is exercised during performance is supported by appealing

\(^{18}\)See, generally Restatement (Third) of Agency § 2.04 (Am. L. Inst. 2006).

\(^{19}\) Restatement (Third) of Agency Section 7.07(3)(a) (“an employee is an agent whose principal controls or has the right to control the manner and means of the agent’s performance of work”).


\(^{21}\) See Kaplow, supra note 17.
to traditional tax values such as taxing the Haig-Simons definition of income, or ability to pay.\textsuperscript{22} As will be shown, both of these features survived importation into the federal superstructure.

B. Codification by the IRS and interpretation by the parties and the courts

These common law agency principles have been codified, with non-trivial variation, into state and federal law as multi-factor balancing tests that require the arbiter to weigh the relative importance of several aspects of the relationship in order to determine whether the worker is an employee. While greater variance exists in state law, there are two legal tests recognized by the courts in the context of federal regulation: the common law “control test,” which adheres closely to the principles of agency law and is focused, somewhat tautologically, on the employer’s right to control the putative employee; and the “economic realities test,” a hybrid test that considers common law factors and the broader relationship of economic dependence between the worker and service purchaser.\textsuperscript{23} While the second is generally considered more inclusive, some commentators have questioned whether there is daylight between them in application.\textsuperscript{24}

Tax law relies on the first of these, the common law standard, or “control test,” codified in IRS Revenue Ruling 87-41 as a 20-factor test incorporating aspects of behavioral, financial, and relational control. Specifically, the factors include: (1) whether the person for whom the services are performed has the right to require compliance with that person’s instructions; (2) whether there is required worker training; (3) whether the worker’s services are integrated into business operations; (4) whether services must be personally rendered; (5) whether the service purchaser or the worker hire and pay any assistants; (6) whether there is a continuing relationship; (7) whether work must be completed in set hours; (8) whether full-time work is required; (9) whether the work must be done on site; (10) whether the work must be performed in a particular sequence; (11) whether the worker must submit regular reports; (12) the interval over which the worker is paid (“by the hour, week, or month”); (13) whether the service purchaser pays or reimburses business or travel expenses; (14) whether the service purchaser provides tools, materials, or equipment; (15) whether the worker invests in facilities that are not furnished by the employer; (16) whether the worker can realize profit or loss; (17) whether the worker works for more than one firm at the same time; (18) whether the worker makes her services available to the general public; (19) whether there is a right to discharge the worker; and (20) whether the worker can terminate the relationship without incurring liability.\textsuperscript{25}

\textsuperscript{22} For example, in contrast to the present distinction, a pure manifestation of the “ability to pay” principle would allow all workers, regardless of type, to deduct business expenses in order to more accurately tax net income. For discussion of other tax distinctions lacking in normative content, see Weisbach, \textit{supra} note 3.

\textsuperscript{23} \textit{Compare} \textit{Nationwide Mut. Ins. CO. v. Darden}, 503 U.S. 318, 323-24 (1992) (discussing the common law test) with \textit{Oestman v. Nat’l Farmers Union Ins. Co.}, 958 F. 2d 303, 305 (10\textsuperscript{th} Cir. 1992) (identifying the correct standard to apply in Title VII actions as “a combination of the economic realities test and the common law right to control test.”)


\textsuperscript{25} Rev. Rul. 87-41, 1987-1 C.B. 296. In contrast, under the Fair Labor Standards Act (FLSA), courts have applied an “economic realities” test. When applying this test, courts analyze six factors to assess the relationship between the worker and business: (1) degree of control that the business has over the manner in which the work is performed; (2) the worker’s opportunity for profit or loss; (3) the worker’s investment in equipment or materials; (4) degree of skill required for the work; (5) the permanence of the working relationship; and (6) the degree to which the services rendered
Now consider the current guidance provided to potential employers in how to apply these factors to their respective relationships:

Businesses must weigh all these factors when determining whether a worker is an employee or independent contractor. Some factors may indicate that the worker is an employee, while other factors indicate that the worker is an independent contractor. There is no “magic” or set number of factors that “makes” the worker an employee or an independent contractor, and no one factor stands alone in making this determination. Also, factors which are relevant in one situation may not be relevant in another.²⁶

On face, such a large number of factors, paired with such determined regulatory agnosticism, seems to run the risk of creating considerable legal indeterminacy.²⁷ Partially in recognition of this, Congress created a safe-harbor provision, Section 530, that permits treating a worker as a contractor if a "reasonable basis" exists for such treatment.²⁸ Critics have disparaged the expansive nature of Section 530, characterizing it as "a harbor the size of the ocean."²⁹ In addition, in recent years, the IRS has created a significant amnesty program, which permits firms to re-classify workers as employees going forward, provided certain conditions are met, without fear of repercussion for previous tax periods’ (incorrect) treatment of the worker as an independent contractor. Whether these efforts to mitigate adverse consequences of “unintentional” misclassification had the perverse consequence of encouraging intentional, or, at a minimum, opportunistic misclassification is unknown.³⁰

C. Implications of worker classification

Despite the evident difficulty in interpreting and enforcing the distinction between employees and contractors, the distinction nevertheless has very real and definite consequences for how the tax system treats workers’ compensation. These, in turn, may affect workers’ effective tax liability and access to tax-code delivered subsides for socially desirable consumption. Significant non-tax consequences follow as well, including

²⁷ In fairness to the IRS, recent guidance on the 20-factor test has re-organized the factors into three main categories: behavioral control, financial control, and the nature of the relationship and provides some indication that certain factors will be given greater weight, though how much is not clarified. See William Hays Weissman, Section 530: Its History and Application in Light of the Federal Definition of the Employer-Employee Relationship for Federal Tax Purposes, at 2-5 (Feb. 28, 2009) (discussing refinement in IRS guidance to employers).
²⁸ Id.
³⁰ For discussion of this possibility, see Jenna Amato Moran, Independent Contractor of Employee? Misclassification of Workers and its Effect on the State, 28 BUFF. PUB. INT. L. J. 105 (2010).
coverage under the lion’s share of U.S. labor protections. The section that follows is a summary; for a comprehensive review, see Professors Oei and Ring recent working paper, “Tax’s Workplace Shift.”

1. Source of potential differences in effective tax liability

Worker classification has the potential to alter effective tax liability through multiple channels. The most prominent is through discrepancies in the payroll tax base and incidence, and differences in permitted deductions associated with a worker’s performance. The most explicit, though relatively modest, source of differential liability arises from contractors’ exemption from the federal unemployment insurance program (FUTA). FUTA is a payroll tax of 6% on the first $7,000 of wages and is nominally paid by the employer. However, the incidence of FUTA likely falls partially, or even fully, on the employee, through lower wages.

A more subtle differential in liability could arise from a difference in the incidence of Medicare and Social Security Taxes for employees and contractors—collectively, these taxes are known as FICA (Federal Insurance Contributions Act) for employees and SECA (Self-Employment Contributions Act). Under classical economic theory, FICA and SECA are economically equivalent taxes, despite being remitted by different parties (in the case of FICA, employers remit; SECA taxes are remitted by contractors themselves). All else equal, contractors and employees will bear the same share of these payroll taxes, relative to the employer/payer; historically, the lion’s share is thought to be borne by the worker. However, an emerging empirical literature has demonstrated that nominal incidence (or statutory incidence) may have a material effect after all.

Another important difference concerns treatment of cost of business (COB) deductions. Businesses are allowed to deduct any outlays used in the generation of income, and contractors are entitled to the same broad-based deductions, with few restrictions. Such deductions for employees are much more limited. Before the TCJA, COB deductions for employees were limited to expenses considered “ordinary and necessary,” and could only be claimed by employees whose total itemized deductions exceeded 2% of their adjusted gross income. In effect, this meant that only employees who itemized, and had a very high ratio of expenses to income, could exercise COB deductions. In addition, COB deductions are notoriously difficult for the IRS to verify, and this could cause contractors and employees with the same true net income to pay very different tax rates.

31 Oei & Ring, supra note 2.
33 The incidence of an employer’s SUTA/FUTA obligation will depend on the relative elasticities of labor demand and supply. Under certain conditions, FUTA’s pass-through rate could exceed unity, in which case firms would lower employee wages by more than the firm’s payments to these programs.
36 I.R.C. § 162
38 See, e.g. Slemrod et. al. (finding information reporting did not have a significant effect on reported tax liability). See also Adhikari, Alm, Collins, and Wilking, Taxpayer Responses to Third-Party Income Reporting: Preliminary Evidence from a Natural Experiment in the Taxicab Industry (2019) (finding that information reporting on gross receipts led to an offsetting increase in reported expenses for taxi drivers).
2. Differences in tax administration of the income tax

Classification also determines whether payroll and income taxes are withheld by the employer/payer, what information is reported by the payer to the government, and who is responsible for remitting taxes and at what interval.\(^39\) In theory, income tax withholding should only affect a worker’s compliance burden, and have a minimal or no effect on a worker’s final tax liability. Over-withholding may result in an employee incurring some time cost, in the form of income that could have been invested throughout the year, but contractors are, in theory, required to make quarterly estimated tax payments on their annual liability.\(^40\) In practice, however, the lack of withholding can have significant consequences for a contractor’s tax liability, such as through increased opportunities for evasion,\(^41\) the possibility of a contractor going bankrupt before paying the taxes she owes,\(^42\) and due to the behavioral response of having a positive tax liability at the end of the year.\(^43\)

3. Differences in access to tax subsidies for socially desirable consumption

Finally, classification can affect workers’ access to tax subsidies for certain types of socially desirable consumption,\(^44\) such as retirement savings and health care, which are tax-subsidized when provided through employer programs. The two most important such subsidies are for employer-sponsored healthcare and employer-sponsored retirement programs. While independent contractors and employees can access the same tax-favored retirement savings vehicles in theory, in practice programs sponsored by employers may be more generous/attractive along a number of dimensions.\(^45\) Similarly, prior to the Affordable Care Act of 2010 (ACA), while self-employed individuals were allowed to deduct health insurance premium payments from gross income, there were still significant differences in financial incentives (i.e., extent of the subsidies).\(^46\) The ACA deliberately tried to weaken the relationship between employment and access to tax-preferred health insurance by creating individual markets and subsidizing the individual purchase of health plans with taxpayer income, but most evidence indicates that employer-sponsored health insurance received comparatively larger tax subsidies.

4. Non-tax implications

Many other federal regulations intended to protect workers apply only to employees. For example, major anti-discrimination legislation, such as the Anti-Discrimination Act and the Fair Labor Standards Act, have this feature, as do several laws that places requirements on employers for the benefit of employees, such as the

\(^{39}\) See IRS Form W-2 (on employer withholding obligations). For details on information reporting obligations with respect to contractor income, see I.R.C. §§ 6041, 6050W, 6654(c), and accompanying regulations.

\(^{40}\) I.R.C. § 6654.

\(^{41}\) See Slemrod, supra note 30.

\(^{42}\) This can have serious consequences for aggregate revenue collection, in addition to the variation it creates in tax liability among similarly situated taxpayers.

\(^{43}\) See, e.g. Alexander Rees-Jones, 2015 (arguing reference dependent preferences at time of payment effect taxpayer effort in reducing tax liability).

\(^{44}\) Professors Oei and Ring refer to these subsidies as “social welfare benefits delivered through the tax code.” I am substantively referring to the same tax treatment, but view the difference between tax subsidy, tax expenditure, and social insurance as largely semantic.

\(^{45}\) For extensive discussion of these differences, see, Oei & Ring, supra note 2 at 23-25.

Family Medical Leave Act and the ACA. While by no means exhaustive, these examples suggest the vast, and largely implicit, effect worker classification has in defining the boundaries of federal regulation of work.

D. Existing literature on “alternative work” and self-employment

In this section, I review recent legal scholarship and empirical work concerning the rise of the gig economy, in which the vast majority of workers are classified as independent contractors by the platforms on which they provide services.

1. Legal scholarship

Recent legal scholarship has largely focused on the particular needs of platform firms and the workers that provide services through them. Thomas (2018) makes two suggestions regarding tax treatment of platform earned income: first, she suggests that income from platform firms be withheld on; second, she argues for the creation of a standardized COB deduction, to partially alleviate the compliance costs. Though Thomas is writing in the context of the gig economy, both suggestions pertain to contractor income more generally. Taking a different approach, Oei and Ring (2018) consider the potential effects that (re-)classifying platform firm workers as employees would have on tax administration. They argue that doing so might enhance the transparency and salience of wages by making the after-tax wage more apparent. Both approaches presuppose there is a meaningful line to be drawn, taking the division of labor income as a given.

There is an extensive literature on the incorporation and consequences of the employee definition into other federal statutes, particularly in the employment/labor law literature. There is also a deep body of work on agency issues that arise in common law contexts, extensive review of which is beyond the scope of this paper.

2. Empirical studies

The only surveys to ask questions explicitly about contractor work that are separate from those about self-employment more generally are the Bureau of Labor Statistics’ (BLS) contingent worker survey (CWS) and Larry Katz and Alan Krueger’s CWS replication.47 Professors Katz and Krueger’s preferred estimate suggests a very small increase in contractors between 2005 and 2015 of 0.2 percentage points, while the CWS suggests a decrease between 2005 and 2017. However, the CWS does find a large increase in contractor use between 2001 and 2005 of 0.9 percentage points.

Another set of studies focus on an overlapping but distinct group of individuals characterized as the self-employed. Conceptually, the population in this study is at once both broader and narrower than the self-employed individuals studied using survey data or administrative data. For example, individuals who provide labor as contractors may not answer that they are self-employed on a survey but will be captured here, while others may be excluded who nevertheless respond that they are self-employed as shown in Abrahams et al. (2018). Furthermore, both Abrahams et al. (2018) and Jackson et al. (2017) use filing a Form Schedule SE as their administrative data measure for self-employment. This sample will exclude some individuals who file Schedule SEs because they do not receive a Form 1099-MISC/K or do not meet the definitions set forth below of a contractor. Although individuals who receive Form 1099-MISC/Ks are taxed as sole

proprietorships, many do not file a Schedule C or Schedule SE, meaning that these individuals will be in this sample but not in the “self-employed” population of previous papers.

A recent paper by Collins et al. (2019) highlights the differences between the two populations, finding that around 40% of Form 1099-MISC recipients in 2016 did not file a Schedule SE and that around 45% of those with a Schedule SE do not receive a Form 1099-MISC, meaning that these individuals will be included in this sample but not in the “self-employed” population of previous papers. Jackson et al. (2017) identify small increases in self-employment, with the increase arising from individuals with low levels of business deductions, which is consistent with the general findings here. Similarly, these increases in self-employment pre-date the introduction of online platform economy companies such as Task Rabbit, Uber, and Lyft.

Finally, a number of papers have focused on a much broader population called “alternative” workers that generally includes contractors, temp agency employees, workers at contracting firms, and on-call workers. The idea behind grouping these labor arrangements together is that they may share substantive economic features, such as flexible hours or finite duration. These papers find mixed results regarding the growth of such alternative workers, reflecting the sensitivity of findings to the data source and exact definition of non-traditional work being used. For example, using data from a survey they administer, Katz and Krueger (2019) find a 1-2 percentage point increase in alternative work between 2000 and 2015 while the CWS finds no increase in alternative work between 2005 and 2017 (BLS 2018). This paper examines a subset of these workers whom I characterize as contractors.

II. U.S. TAX FILING DATA

This section describes the general features of the data and the details of the strategy I use to identify contractor relationships. In addition, I provide the details of, and a justification for, the construction of the samples used in the descriptive and causal analyses, respectively.

The data used in this analysis are more complete and accurate, and less subject to error, than the sources used by the existing literature on contracting and alternative work arrangements. However, identifying contractors in these data is not straightforward. I build on the data construction and parsing efforts detailed in a related project (Lim, Miller, Risch, and Wilking 2019).

A. U.S. administrative tax data

The U.S. Department of Treasury maintains a centralized, relational database of digitized tax form filings. Referred to as the Compliance Data Warehouse (CDW), this database contains information from all returns filed by U.S. taxpayers from tax year 2001 onward. The CDW serves multiple functions: its primary purpose is to underlie an interface that allows individual enforcement and collections officers to query an individual taxpayer’s filing and payment history as part of collection efforts. In addition, the CDW is used internally by government researchers to make revenue forecasts and to simulate the likely effects of various administrative

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48 A “relational database” is a database that separately stores various datasets, usually at different observation levels, in a way in which the datasets can be queried or joined without being loaded into active memory.
INDEPENDENT CONTRACTORS

policies. I conduct this analysis under the auspices of small academic partnership program managed by the Research Analytics and Statistics Division of the IRS.49

To conduct my analysis, I construct two datasets from the universe of digitized tax filings contained in the CDW for tax years 2001-2016. The first dataset ("descriptive analysis sample") is a repeated cross-section of worker-firm relationships, represented by three information reports: Forms W-2, 1099-MISC, and 1099-K. For each form type, and within each tax year, I draw a 2% random sample from the universe of these reports. I then incorporate additional information about the workers and firms in this sample of relationships, including workers’ income tax returns. The second dataset ("causal analysis sample") is a panel dataset of individuals drawn from a 5% sample of employees at age 60, who are then followed through subsequent tax years. As in the descriptive analysis sample, I link these workers to additional information about them and the firms that employ them. This dataset allows me to observe how employees transition to being contractors with the same firm over time, something that data limitations have prevented in previous studies.

There are several notable advantages to using tax return data to study questions related to independent contractors. First, it is possible to link independent contractors to all firms that compensate them through their information reports, namely Forms 1099-MISC and 1099-K. While the integrated LEHD-LBD infrastructure provides a panel of firm-employee relationships, sole proprietorships, and partnerships, it is not possible to link the subset of sole proprietors who are unincorporated independent contractors to payers. As found in Jackson, Looney, and Ramnath (2017), a large fraction of 1099-MISC recipients cannot be linked to Schedule C self-employment income reports. The tax data allow me to observe the universe of Schedule C filers and the universe of 1099-MISC/K recipients, and to leverage the link (or missing link) between these reports to investigate the multifaceted nature of contract labor and how it has changed over time. Using the tax data, I am not only able to observe the universe of self-employed individuals, but able to link the self-employed contractors with the firms that contract them. This firm-worker link is central to the research questions proposed here.

Second, I can link workers to their individual income tax returns (Form 1040). Making this link allows me to observe information relevant to the nature of the firm-worker relationship within the tax year, such as the degree to which the worker relies on income from the firm, as well as information that spans tax years, such as the length of time a worker has been associated with a specific firm, and whether or not the same worker has switched classification while working for the firm. Form 1040 also contains various outcome variables of interest: detailed information on deduction-taking, total reported income, and information on non-wage compensation.

Finally, I can access a rich set of firm characteristics by linking employing firms to their business income returns and other filings. These forms include information on firm deductions for employee benefits, which I use in the causal analysis to confirm that larger firms that respond to the discontinuous cost threshold arising from their employee’s Medicare eligibility were indeed providing employer sponsored health insurance.

There are also some important drawbacks to these data. I am unable to observe how many hours someone has worked, which makes it more difficult to directly compare compensation across workers. Also, for regulations that are not enforced by the IRS, such as the Medicare eligibility threshold that I use in the causal analysis, I am unable to observe the exact firm size measure used by the regulatory agency to determine

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49 The program is jointly sponsored by RAAS, the Statistics of Income Division and Office of Tax Analysis at the Department of the Treasury; project proposals are selected in a competitive bid process on their basis to inform tax policy and tax administration decision makers.
whether the firm is subject to the regulation, and therefore rely on data-driven proxies for these measures. Additionally, I observe firm-worker matches at the level of the employer identification number (EIN), as opposed to the establishment or firm, which are often used in linked firm-employee datasets. Firms can have multiple EINs and EINs can change over time.

B. Identifying contractor income in tax data

Central to the analyses in this paper is the need to identify independent contractors in the tax data. To do this, I limit the sample of Form 1099-MISC recipients to those with positive amounts of non-employee compensation, reported in box 7 of the form. The IRS requires that businesses issue Form 1099-MISC to individuals or other businesses for services provided by someone who is not an employee of the issuing business. I start with a 2% annual cross section of all recipients for each tax year 2001-2016. However, because I am trying to identify individuals providing services, I refine the sample to exclude recipients who employ others. I do this for two reasons. First, conceptually, I consider employer businesses distinct from contractors because their activity rises above merely an individual providing their own labor services to a firm. Second, it is not possible to determine whether the employee or the owner was providing labor services to the business issue the Form 1099-MISC. For example, a Form 1099-MISC could be issued to a catering company with many employees or to a law firm for attorney services.

Form 1099-K was introduced in 2011 as an information report on credit card transactions and third-party payments that exceed both $20,000 and 200 transactions in a year. Contractors who receive compensation in the form of credit card payments may have part or all of their contract income reported on Form 1099-K rather than Form 1099-MISC. In order to include contractors for whom all of their contract income is reported on a Form 1099-K, I draw a separate 2% sample of Form 1099-K recipients in each year from 2011-2016. Many Form 1099-K recipients will not be considered contractors because these forms are issued to any business that accepts credit cards as payment for goods or services, underscoring the importance of using additional information on recipients to identify contractors. For sampled Form 1099-MISC recipients, I also link to any Forms 1099-K that they receive in order to count total contract income for individuals receiving both forms. Analogously, for sampled Form 1099-K recipients, I link to any Forms 1099-MISC received.

Figure 1 shows that the total number of Form 1099-MISC/K recipients has increased over the sample period. The number of Form 1099-MISC recipients increased from approximately 18 to 26 million from 2001 to 2016. When including Form 1099-Ks, there are over 30 million recipients in 2016.

III. DESCRIPTIVE ANALYSIS OF EMPLOYEE AND CONTRACTOR RELATIONSHIPS

The criteria upon which a worker is classified as either an employee or an independent contractor, as codified in the multi-factor balancing test used to make this determination, are multi-faceted and, one might argue, defy quantification in any respect. But this view is misguided: while any of the available proxy measures for the criteria may provide insufficient information to positively determine a worker’s status in a given relationship within an acceptable margin of error, the aggregate distributions of these measures should be distinguishable among employees and contractors, provided that the measures meaningfully relate to the legal

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50 However, several for-profit companies have had success in marketing algorithms that can predict complex legal outcomes, including multi-factor balancing tests. Cite Bloomberg, Daily Tax Report “Insight: Turning Standards into Rules-Part 3: Behavioral Control Factors in Employee vs. Independent Contractor Decisions.”
standard. Put differently, while any specific worker’s classification may not turn on any or all of the available proxy measures, we should expect the average contractor to differ significantly from the average employee on each.

This section puts this theory to the test. First, I describe six quantitative measures that I argue are informative about the nature of a worker’s legal relationship with her firm. Second, I present three main findings from an analysis of U.S. tax filings data: first, the average employee and contractor in tax year 2016 are strikingly similar on all metrics, though important differences emerge in the extremes of the distribution; second, employees and contractors have converged, or become more similar, on four of the five common metrics since 2001; finally, this convergence has not been shared equally across the income distribution—lower-income employees and contractors have rapidly become virtually indistinguishable, whereas the differences between their higher-income counterparts remain pronounced.

A. Quantitative measures characterizing work relationships

As discussed in Section I.B., supra, in determining a worker’s status for tax purposes, the courts have historically relied on a common-law test, codified by the IRS into twenty factors. Under this test, and common law doctrine more generally, a number of different facets of the relationship between the worker and the firm are considered and weighted in accordance with the specific factual context. Although there are slight differences in application, a version of the common law test is widely used in other federal statutes and interpreted by several other federal agencies. For example, the Supreme Court has defined an employee under ERISA by the common-law standard.

Drawing on these commonalities and their discussion in relevant case law, I have identified six quantitative metrics that correspond either directly or indirectly to the combination of behavioral, financial, and relational factors set forth by the IRS:

i. income dependence—how much of an independent contractor’s earnings come from a single firm?
ii. number of payers—how many firms pay an independent contractor?
iii. distance—how far from a firm does an independent contractor live?
iv. tenure—over how many tax periods is an independent contractor paid by a firm?
v. compensation volatility—for relationships that span multiple tax years, how much does an independent contractor’s compensation vary year to year?
vi. amount and nature of deductions—how many deductions are claimed by an independent contractor, or did the contractor realize a loss, and are an independent contractor’s deductions primarily for “capital-like” expenses or those typically associated with providing labor services?

51 While the IRS enumerated specific factors, it did not do so exclusively—“this list is not exhaustive, and other aspects may also impact the analysis.” Joint Comm. On Taxation, Present Law and background Relating to Worker Classification for Federal Tax Purposes [JCX-26-07]. Recently, the IRS has refined these factors, collapsing the factors into three broad categories of control: behavioral control, financial control and the nature of the relationship. Present Law and Background [JCX-26-07] 5; Pub 15-A.

52 With the notable exception of the FLSA, which employs the economic realities test.

53 The leading case providing guidance for how to distinguish between employees and independent contractors under ERIS is Nationwide Insurance Company v. Darden. In Darden, the Supreme Court applied a common-law control test from agency law to determine whether a worker qualified as an employee or an independent contractor. 503 U.S. at 323-24. This test, which examines an array of factors to assess the hiring party’s control over the worker, is similar to the IRS control test. See Tracy Snow, Balancing the ERISA Seesaw: A targeted Approach to Remediing the Problem of Worker Misclassification in the Employee Benefits Context, 79 GEO. WASH. L. REV. 1237, 1248 (2011).
For criteria (i)-(v), I also define their analog pertaining to employees. For example, when defining the number of payers (ii) for employees, I measure this by the number of firms issuing a Form W-2 to that worker. Then, I document patterns over time in each of these characteristics, separately for independent contractors and employees. These time series plots provide initial evidence about the degree to which the economic reality faced by workers of each type differs, and whether those differences have grown larger or smaller over time.

1. Income dependence

While not one of the factors included in the IRS 20-Factor Test, there are several references in case law to a worker’s “economic independence” as a factor weighing in favor of contractor status. For example, to distinguish an employee from an independent contractor, the Department of Labor issued a regulation stating that “an employee, as distinguished from a person who is engaged in a business of his/her own, is one who, as a matter of economic reality…is dependent on the business which he or she serves.”54 The regulations do not specify what it means to be “dependent on” a business; however, in another context, the Fourth Circuit has indicated that “dependent on” refers to the extent to which a worker’s compensation depends on the purported employer versus the worker’s other business opportunities or investments.55

The degree to which a worker is dependent upon a single firm has significant implications for that worker’s outcomes. Unlike a worker who provides her services to multiple firms and whose compensation is spread more evenly across them, a worker dependent upon a single firm faces much greater income risk if that relationship terminates. Similarly, a worker dependent upon a single firm often accumulates human capital specific to that firm, which gives the firm a stronger bargaining position since those skills may be non-transferrable to other firms.

One could imagine measuring in several different ways the degree to which a worker is “economically dependent” on a given relationship with a firm, as articulated by the case law. One of the most straightforward is the compensation received from a particular relationship as a share of total compensation the worker received in that tax year, i.e., income dependence. To illustrate, consider an independent contractor relationship with Firm A in tax year Y. Suppose this contractor also worked for Firm B in year Y. Her income dependence would be equal to the compensation she received from Firm A divided by the sum of her compensation for the tax year from Firm A plus the compensation she received from Firm B. An attractive feature of this particular construction is that its analog can easily be calculated for employees. In addition, because it is a

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54 U.S. Department of Labor, Wage and Hour Division, FACT Sheet on ERISA (July 2008). While this guidance was provided with respect to ERISA and may seem more reminiscent of language associated with the “economic realities test,” the Supreme Court has explicitly defined an employee under the ERISA by the common law standard, the same standard used for federal tax purposes. When applying the economic realities test, courts analyze six factors to assess the relationship between the worker and business: (1) the degree of control that the business has over the manner in which the work is performed; (2) the worker’s opportunity for profit or loss; (3) the worker’s investment in equipment or materials; (4) degree of skill required for the work; (5) the permanence of the working relationship; (6) the degree to which the services rendered are an integral part of the business. See McFeeley v. Jackson St. Entm’t, LLC, 825 F.3d 235, 241 (4th Cir. 2016) (citing Schultz v. Capital Int’l Sec., Inc., 466 F.3d 298, 304–05 (4th Cir. 2006)). See also Acosta v. Paragon Contractors Corp., 884 F.3d 1225, 1235 (10th Cir. 2018) (applying the same six-factor test); Iontchev v. AAA Cab Serv., Inc., 685 F. App’x 548, 550–51 (9th Cir. 2017) (applying the same six-factor test).

55 See McFeeley, 825 F.3d at 243 (“The more the worker’s earnings depend on his own managerial capacity rather than the company’s, and the more he is personally invested in the capital and labor of the enterprise, the less the worker is ‘economically dependent on the business’ and the more he is ‘in business for himself’ and hence an independent contractor.”) (quoting Henderson v. inter-Chem Coal Co., Inc., 41 F.3d 567, 570 (10th Cir. 1994)).
percentage (i.e., a measure bounded between zero and one), rather than an absolute measure of compensation, the fact that contractor compensation is gross and employee compensation is net does not significantly affect the interpretation.

2. Number of payers

The second metric I analyze is the number of unique payers from which the worker/payee receives compensation within the same tax year. The original IRS 20-Factor Test, used for most of the sample period, explicitly included “Work for Multiple Companies” as one of its 20 factors indicative of a contractor relationship, elaborating that “People who simultaneously provide services for several unrelated companies are likely to qualify as independent contractors.” This measure is also implicitly related to two other factors in the original 20-Factor Test: whether the worker makes her services available to the public, and whether the relationship demands full-time work. A worker with 40 or 50 payers is much more likely to provide services to the public at large, and each relationship is unlikely to demand full-time work, relative to a worker with only one or two payers.

This metric is closely related to, but distinct from, income dependence. A worker who receives compensation from multiple firms is, all else equal, less likely to depend on any single firm for her compensation. However, the number of payers may be informative even if income dependency is held fixed.

3. Distance to payer

In general, annualized tax data are less informative about factors concerning behavioral control than relational or financial control. For example, it is not possible to use tax data to observe the nature and extent of training or instruction a worker receives about how to perform a given task. However, an important indicator of behavioral control is whether the work is performed on-site, where the employer can exert greater control over the environment.

While I cannot directly observe whether the worker works on-site, I can observe a variable that is correlated with on-site work: the distance between the payer and the payee. At low values—say, between 0 and 50 miles—the distance between the payer and the payee is unlikely to be informative about whether work is performed on-site, let alone the degree of behavioral control retained by the firm. However, at high enough

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56 Joint Comm. On Taxation, Present Law and background Relating to Worker Classification for Federal Tax Purposes [JCX-26-07].
57 Joint Comm. On Taxation, Present Law and background Relating to Worker Classification for Federal Tax Purposes [JCX-26-07]. “Full-time work gives a company control over most of a person’s time.
58 As an example, consider two sampled contractor relationships—Contractor 1-Firm A, and Contractor 2-Firm D. (Recall that the sampling unit of this analysis is the relationship, not the worker.) Contractor 1 also has relationships with Firms B and C, while Contractor 2 also has a relationship with Firm E. Contractor 1 derives equal compensation from each of her relationships, or one-third from each firm. Contractor 2 derives one-third of her income from Firm D and the remaining two-thirds from Firm E. Therefore, the two sampled relationships—Contractor 1-Firm A, Contractor 2-Firm D—each have the same value of income dependence (one-third), but have different numbers of payers (3 vs. 2).
59 Survey data has traditionally been used to evaluate behavioral control, reference various sociology papers.
60 See, e.g. Independent Contractor Defined, Internal Revenue Serv. (“(9) whether the work must be done on the employer’s premises”)
values, where the distances likely exceed what is considered feasible for a regular commute, this measure may be predictive of whether work is performed on-site.\(^{61}\)

Of course, physical proximity is no longer a necessary condition for supervision; employers may use technology that permits them to closely monitor work at great distance, such as computer software that monitors activity on a company’s network by workers logged in remotely, or video conference calls. However, particularly for industries where work is more likely to take place on-site, like manufacturing, physical proximity is arguably still informative as to the degree of control or direct supervision that a payer can exercise over a service provider.

To create a measure of the physical distance between the worker’s home and the worksite, I measure the cartesian (“as the crow flies”) distance in miles between the payer’s zipcode and the worker’s address. This measure is quite coarse, not taking into account actual commuting time by car or public transportation. There are also several caveats regarding the construction of this measure. First, the payer’s address is associated with their EIN, which is an entity-level identifier rather than an identifier for the actual worksite. For many firms, particularly smaller firms, the address of the EIN and the address of the worksite are one and the same. However, for some firms, the EIN address may be that of the corporate headquarters, rather than the site to which a worker might report. To limit the effect of these cases on the analysis, I restrict the sample to payers and payees within the same state.

On its own, this distance measure is unlikely to fully convey the degree of supervision exercised by a firm over a worker, but when combined with the other measures presented here, it may reinforce the trends of the more informative metrics.

4. Tenure with payer

Historically, contractors have been engaged to perform services for a particular project to be completed within a finite amount of time, rather than retained by firms indefinitely. The IRS 20-Factor Test includes “continuity of relationship” as a potential indicator of employee status.\(^{62}\) Courts have also consistently referenced the “the permanence of the working relationship” in applying the hybrid common law test and the economic realities test in the context of federal statutes.\(^{63}\)

Like income dependence, the duration of a relationship between a worker and a firm can significantly affect a worker’s labor market outcomes. First, the longer a worker stays at a job, on average, the less likely she is to leave in any given year. Second, the longer a worker stays at a job, on average, the higher her earnings will be.\(^{64}\) As a worker-firm relationship progresses, both parties learn more about each other and, if they choose

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61 The American Community Time Use Survey has tracked commuting times for several decades.

62 Joint Comm. On Taxation, Present Law and background Relating to Worker Classification for Federal Tax Purposes [JCX-26-07]. “A continuous relationship between a company and a worker indicates a possible employment relationship.” In addition, the updated 20 factor test lists “Ongoing relationship” as a factor to which it gives “high priority”

63 See McFeeley v. Jackson St. Entm’t, LLC, 825 F.3d 235, 241 (4th Cir. 2016) (citing Schultz v. Capital Int’l Sec., Inc., 466 F.3d 298, 304–05 (4th Cir. 2006)). See also Acosta v. Paragon Contractors Corp., 884 F.3d 1225, 1235 (10th Cir. 2018) (applying the same six-factor test); Iontchev v. AAA Cab Serv., Inc., 685 F. App’x 548, 550–51 (9th Cir. 2017) (applying the same six-factor test).

to continue the relationship, it is less likely that new information will come to light that causes either to reconsider.

Economists refer to the duration of employment as “tenure,” and it can be measured in several different ways. In the tax data, I measure it in two ways. First, for the 2016 sample, I define tenure as the number of consecutive tax years the relationship existed prior to 2016. For example, if an employee relationship is sampled in 2016, I gather additional data about whether the same firm also issued the same employee a Form W-2 in previous years. If the firm issued a W-2 to this employee in years 2012 through 2015 as well, I would then assign the relationship a tenure value of five. Second, in the time series analysis, I use a slightly modified version of this definition. Because earlier cohorts of sampled relationships cannot be traced back before 2000, when the earliest tax data are available, I define tenure as whether a relationship existed in the year prior to when it was sampled. A worker in a contractor relationship with a firm in 2003 is considered to have “tenure,” in this case, if that same worker was also in a contractor relationship with that firm in 2002.

5. Compensation volatility

The IRS 20-Factor Test does not include a factor directly related to how much a worker’s compensation from a given firm varies from year to year. However, it does include a factor for “Risk of Loss,” considered one of the three most important factors according to the manual the IRS uses to train worker classification auditors. This factor is related to the volatility in a worker’s compensation, including the possibility that she will incur a loss, as described in greater detail below.

Like the income dependence measure discussed above, compensation volatility captures a form of dependence. Just as an employee is “dependent upon” her employer if she draws most of her income from that firm, such dependency may also rest on the stability of that compensation. This volatility may be a function of many things, including a contractor’s entrepreneurial activity and effort.65

Compensation volatility is also crucial to economic welfare. In most microeconomic models of behavior, people are assumed to have “concave” utility functions, meaning that they experience diminishing marginal returns from each additional dollar they receive. Therefore, a worker’s utility is maximized if she receives the same compensation in equal installments, rather than in unequal ones.

I define compensation volatility as the percentage change in a worker’s compensation from a given payer firm from the previous to the current tax year. This measure is, by construction, only defined for workers who had a relationship with firm for at least two tax years. In the time series analysis, I take the absolute value of this change.

6. Amount and nature of deductions

Though there is not an exact analog that can be constructed and contrasted for employees,66 the level and type of deductions for contractors provide critical insight into how services are provided, and the financial control

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65 One of the factors identified by the IRS 20 Factor Test.
66 For the duration of my study window, employees were allowed to deduct unreimbursed expenses incurred in the course of performing their duties. I.R.C. § 162. However, there were several restrictions on these deductions, the most important being that the amount of these deductions, along with certain other costs, collectively called “miscellaneous itemized deductions” were only deductible if they exceeded a 2% floor of the taxpayer’s adjusted gross income. I.R.C. §§ 62,67. This creates a significant selection effect, where only employees who 1) itemize (this tends to be those taxpayers
exerted by the service purchaser. As discussed in Section I.A, supra., contractors are allowed considerable latitude in claiming business deductions, and are allowed to take them “above the line,” i.e. even if the taxpayer is not itemizing. This can have a significant effect on the worker’s ultimate tax liability, and, because expenses are not third-party reported, can present serious tax enforcement challenges.

The existence and magnitude of deductions is also directly relevant for four of the original 20 factors promulgated by the IRS. It also, even more so than compensation volatility, direct evidence of financial control as envisaged in IRS guidance: if deductions exceed revenues, the worker suffers a loss.

While I argue that certain values of total deductions are informative (e.g., taking zero deductions), the absolute amount of deductions is likely to vary significantly with the size of the business. Therefore, to allow me to compare the deduction behavior of contractors with different levels of receipts, I divide the total deductions claimed by gross receipts, or an expense ratio, for contractors who filed a Schedule C in that tax year.

In addition, the nature of the deductions may also be informative of a worker’s legal relationship. While the existence of business or travel expenses are one of the original 20 factors, additional guidance from the IRS and case law place heavy emphasis on “capital-like” deductions that may indicate the worker used and maintained her own tools in performing the service contract.

To gain traction on this concept, I identify line items that are most closely associated with the actual rendering of the worker’s time (i.e. they have no intrinsic value, unlike tools or equipment that can be resold) and are likely rival from the perspective of the payer firm—i.e. a business dinner with the payer firm’s clients likely

67 I.R.C. § 67(g). See also P.L. 115-97, § 11045.
68 See, e.g. Slemrod et. al (showing that the introduction of third-party reporting on gross income had limited effect on tax collections for self-employed taxpayers). See also Adkihari, Alm, Collins, and Wilking (showing that taxi drivers required accept credit cards and subject to third reporting party reporting on the 1099-K offset the increase in reported gross income by reporting a similarly sized increase in expenses).

69 Joint Comm. On Taxation, Present Law and background Relating to Worker Classification for Federal Tax Purposes [JCX-26-07]. These factors include “Payment of business or travel expenses. Independent contractors typically bear the cost of travel or business expenses, and most contractors set their fees high enough to cover these costs;” “Provision of tools and materials. Workers who perform most of their work using company-provided equipment, tools, and materials are more likely to be considered employees;” “Investment in facilities. Independent contractors typically invest in and maintain their own work facilities;” and “Realization of profit or loss. Workers who receive predetermined earnings and have little chance to realize significant profit or loss through their work generally are employees.”

70 According to the manual used by the IRS to train classification auditors, one of the three most important factors is: “Worker’s ability to make a profit or suffer a loss: An employee may be rewarded, disciplined, demoted, or fired depending on job performance, but only an independent contractor can realize a profit or incur a financial loss from his or her work. In other words, and employee will always get paid; and independent contractor, however, has a financial stake in his enterprise.”

71 For example, the old IRS factor test included “Provision of tools and materials. Workers who perform most of their work using company-provided equipment, tools and materials are more likely to be considered employees. Work largely done using independently obtained supplies or tools supports an independent contractor finding.” Similarly, the IRS website “Understanding Employee vs. Contractor Designation” cites “Significant investment in the equipment that the worker uses” as a key question in determining financial control.
benefits only that specific client. I identify the following three line item deductions as labor-associated expenses: car and truck (Line 9), travel (Line 24(a)), and meals (Line 24(b)). I then divide the sum of these labor-associated deductions by all deductions, yielding the labor deduction share.

Of course, the tax data measure the deductions actually claimed by contractors rather than those to which they are entitled, which may be the more relevant factor in classification. Taxpayers may fail to deduct legitimate expenses for a number of reasons—e.g., lack of record keeping and other compliance costs, time constraints relative to the filing deadline. Professor Thomas suggests that gig economy workers are disproportionately likely to suffer from these constraints; and Professors Oei and Ring document confusion from primary sources. However, actual behavior can still be informative, as I will argue in the results section below.

B. Findings on the nature of work relationships for employees and contractors

Having established the intuition behind the chosen measures, in this section I detail three empirical findings. First, employee and contractor relationships in 2016 were similar on several of these measures. Second, differences between the two relationship types have narrowed over time. And third, these similarities are most pronounced for low-income workers.

1. Employees and contractors in 2016 were very similar

For each quantitative measure presented here describing the nature of individuals’ work and their relationships to firms, the goal is to determine whether employees and contractors differ on that measure. However, merely asking whether the average employee and the average contractor differ is potentially misleading because several of these measures may contain outliers. For example, if a handful of contractors have a very large number of payers, then the average number of payers among contractors may be significantly higher than the corresponding average among employees due to this handful of outlier contractors. To guard against this, it is more informative to compare the characteristics of an employee and a contractor at a given percentile of their respective distribution. In other words, when considering the number of payers a worker has, one can compare the median employee—half of employees have more payers than this employee, and half of employees have fewer—with the median contractor. Though the median, or the 50th percentile, is commonly used in such comparisons, one can compare the employee and contractor at any percentile of their respective distributions.

To compare employees and contractors on these quantitative measures while remaining robust to outliers, I proceed in two ways. First, I examine visual evidence comparing the distributions of these characteristics for employees and contractors. Second, I rely on quantile regressions. As linear regression is a technique used to determine the relationship between an independent variable, such as education, on the average of a dependent variable, such as earnings, a quantile regression is an analogous technique to determine the relationship between an independent variable and a specified percentile of a dependent variable. For example, in the context of a causal analysis, a quantile regression can estimate the effect of an education intervention on low-earning workers, rather than on the average worker, as a linear regression would do. In this descriptive analysis, I use quantile regression to estimate the relationship between a worker’s status and each of the quantitative

See, e.g., Knittel et al. (2012) for an extended discussion of which deductions are associated with service provision. [Also provide individual justifications for why these line items, and maybe cite Thomas]

measures described earlier, measured at the 10th, 50th, and 90th percentiles. This allows me to determine whether employees and contractors differ systematically at different points in the distributions of each of these measures.

I first begin by comparing employee and contractor relationships on their annual compensation in 2016 (Figure 2). For employee relationships, this is the earnings reported on Form W-2; for contractor relationships, this is the non-employment compensation reported on Form 1099-MISC/K. These distributions differ substantially from each other at almost every percentile. The median compensation for a contractor relationship is $3,321, compared to $13,482 for employees. At the 75th percentile, this difference is even more pronounced: $10,915 for contractors, but $39,214 for employees.

Next, I turn to examining the degree of income dependence exhibited by employee and contractor relationships, defined as the amount of compensation represented by the sampled relationship as a share of total compensation of that type (Figure 3). Unlike with the level of compensation, on their degree of income dependence employees and contractors look very similar. Most of the sampled employee and contractor relationships represent the totality of income of that type earned by the worker. This reliance on a single relationship for all or almost all of their compensation is a common feature of both employees and contractors. This pattern is confirmed in Table 3, which reports the results of quantile regressions on this measure at the 10th, 50th, and 90th percentiles. In 2016, a worker’s dependence on the sampled contractor relationship was just 1.4 percentage points less than that of an employee at the 10th percentile, just 0.5 percentage points less at the median, and exactly the same at the 90th percentile.

A related measure to income dependence is the number of payers a worker has. In Figure 4, I compare the distributions of payers for employees and contractors in 2016. The plurality of contractors and employees receive compensation from only a single payer. This stands in stark contrast to the perception that contractors perform services for multiple firms. Even beyond this, the two distributions are very similar: the median number of payers for contractors and employees is two, while the 75th percentile for both types of workers is three. Where the two distributions differ substantially is in the right tail: at the 95th percentile, for example, an employee has five payers, while a contractor has 10.

Figure 5 reports the distributions of distance, measured in miles, between the payer and payee, for contractors and employees in 2016. Like the distributions for number of payers, the distance distributions for employees and contractors overlap significantly. This is confirmed in Table 3, which also reports the results of quantile regressions on the distance measure. At the 10th percentile, there is no difference in distance between employee and contractor relationships, and at the 50th percentile contractors are just 1.6 miles further away. However, as with the distributions for number of payers, the distance distributions diverge at the right tail. At the 90th percentile, contractors are located almost 36 miles further from their payer firms than employees.

I compare the tenure of contractor and employee relationships in 2016 in Figure 6. Defined here as the number of consecutive years in which a worker and a firm have had a relationship prior to 2016, it is clear that, as expected, employees and contractors diverge. These differences are largest in the tails of the distribution: 46% of contractor relationships in 2016 are not observed in prior years, relative to only 34% of employee relationships, while 17% of employee relationships had tenures of 10 or more years in 2016, compared to only 8% of contractor relationships.

The next measure I consider is compensation volatility (Figure 7), which is limited to relationships that are also observed the prior tax year. The distributions for both employee and contractor relationships tend to cluster near zero, where compensation is unchanged from one tax year to the next. However, significantly
more of the contractor distribution is located to the left of zero, implying that compensation in these relationships declined in 2016 relative to the year prior. This difference between contractor and employee relationships likely owes to several factors, including minimum wage laws that set a floor for employee compensation, as well as a phenomenon known as downward wage rigidity in which employers seldom cut wages for employees. Though contractor relationships are more likely to see compensation fall, they are also more likely to see compensation rise from one tax year to the next. Table 3 reports the results of quantile regressions on compensation volatility. At the 10th and 50th percentiles, a contractor relationship’s compensation volatility is 1.8 percentage points and 2.3 percentage points more negative than that of an employee relationship, respectively. At the 90th percentile, however, a contractor relationship’s compensation is 8.5 percentage points higher than that of an employee relationship. This underscores the point that the compensation of contractors is more volatile overall than that of employees.

The final measure I consider is deduction-taking among contractors in 2016 (Figure 8). As discussed above, contractors are generally not directly reimbursed by payers for their expenses. Therefore, it is particularly striking how many contractors do not claim any deductions. For the sample in 2016, more than a third of contractors (35.6%) reported zero deductions, and more than half of Schedule C filers (57.1%) claimed less than $5,000 in total deductions. Similarly, only 9.1% of the sample that reported a loss. The types of deductions that contractors take are also revealing. Labor-associated deductions make up the plurality of deductions under $5,000, suggesting that the division between contractor and employee is more administrative than substantive. Contractors are largely claiming small amounts of expenses that would have been reimbursed by their employer had they been employees, rather than structurally different capital investment expenses that could be used to provide services to other clients.

Overall, in tax filing data from 2016, employee and contractor relationships differed substantially on some measures, such as levels of compensation, tenure, and compensation volatility, but were substantively similar on others, such as income dependence, number of payers, and distance to payer.

2. Employees and contractors have been converging in the factors over time

Instead of comparing employee and contractor relationships at a single point in time (tax year 2016), I now turn to comparing the dynamics of these relationships over time, using a similar set of measures.

First, I consider changes in the degree of income dependence among employee and contractor relationships (Figure 9, Panel A). In 2001, the average sampled contractor relationship represented just over 65% of a worker’s total contractor income, and the average sampled employee relationship represented just over 70% of a worker’s total employee income. By 2016, that gap as has narrowed modestly, mostly due to an increase in the dependence of contractors on a single contractor relationship.

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75 This number is difficult to interpret without its analog among employees. However, it raises the question of what a profit/loss realization measure tells us. In addition to direct financial costs incurred while performing work, an employee and a contractor both have an opportunity cost of their time and effort. Opportunity costs are not observable, much less tax-deductible. Given that the vast majority of contractors are claiming low dollar amount deductions, if any, it seems plausible that the opportunity cost that incur exceeds any direct financial costs in value. This reasoning would suggest that the economically meaningful measure (if not the legally meaningful one) of cost may be relatively similar between contractors and employees.
Second, I examine the evolution in the number of payers of contractors and employees (Figure 10, Panel A). As expected, contractors have, throughout this period, had on average a larger number of payers than employees, particularly due to the long right tail of this distribution. However, while in 2001 contractors had, on average, just over one additional payer relative to employees, by 2016 this gap was cut almost in half.

Third, I explore how the distance between payer and payee for contractors and employees has changed (Figure 11, Panel A). As with the number of payers, the average for contractors is consistently higher than the average for employees due to the long right tail of the contractors' distribution. Unlike the preceding series, the gap between contractors and employees does not narrow but actually widens with time. This may be partially explained by the introduction of Form 1099-K in 2011. This form, which captures contractor income made through credit card transactions, is typically issued by credit card companies or other market makers, often with a corporate address rather than one associated with where the work takes place.

Fourth, I consider the evolution of relationship tenure for contractors and employees (Figure 12, Panel A). Unlike the measure described previously, this definition of tenure focuses on whether the relationship existed just in the prior tax year and is therefore reported only from 2002 onward. Employee relationships are more likely to have existed in the prior year than contractor relationships. However, the gap between these two rates has diminished substantially from 2002 to 2016, implying that contractor relationships have grown more stable over time.

Fifth, I study changes in workers’ compensation volatility for contractors and employees (Figure 13, Panel A). Note that here I consider absolute changes in compensation from one tax year to the next, treating increases and decreases in the same way. In 2002, the average sampled contractor relationship had compensation that differed by 35% from the year prior, compared to just under 20% for the average sampled employee relationship. This gap of over 15 percentage points narrowed to almost 10 percentage points by 2016, as both employee compensation volatility increased and contractor compensation volatility decreased.

Finally, I examine changes in contractors’ deduction-taking (Figure 14). Though shown separately by workers’ adjusted gross income (AGI), contractors exhibit a trend of decreasing deductions as a share of gross receipts. The sharp drop in 2007 might be explained in part by a reluctance of contractors to make investments (and incur outlay costs) in the uncertain conditions surrounding the financial crisis. Whatever the cause for this drop, if we assume that employees have a deduction to gross receipts ratio equal to zero, then contractors have observably converged toward employees over the sample period. There has also been a steady rise in the fraction of deductions for labor-associated expenses, again indicating that contractors and employees are becoming more alike in economic substance. For example, if two workers incur the same expense in the course of performing tasks, such as taking a client out to dinner or purchasing gas for delivery, and one worker is reimbursed for these expenses by her employer while the other includes this cost in her gross compensation and then deducts it, this is a distinction without an economic difference.

3. This convergence is most pronounced for lower income workers

The patterns I have documented so far have considered all sampled employee and contractor relationships equally. However, this approach masks important differences in how the two types of workers compare—and how comparisons between them have evolved over time—based on a worker’s place within the income distribution. Specifically, these phenomena have not been shared or experienced equally by low-income and high-income workers, which I can measure by linking workers to their Form 1040 to recover their AGI.
Categorizing workers as low-income if their AGI is below the median in a given tax year and as high-income otherwise, I re-examine the evidence presented in the previous two sections.

First, the gap between employees and contractors in their income dependence on a single relationship appears to be driven almost entirely by high-income workers. Among low-income workers, the degree of income dependence exhibited by employees and contractors is, and has been for many years, quite similar (Figure 9, Panel B). This suggests that low-income workers are equally dependent upon a given relationship, whether that relationship takes the form of an employee or contractor relationship.

Second, the gap between employees and contractors in their number of payers is also driven almost entirely by high-income workers. Throughout the period studied here, among low-income workers, the average number of payers for employees and contractors has been almost identical (Figure 10, Panel B).

Third, when comparing employee and contractor relationships in the distance between payers and payees, the large gap narrows somewhat for low-income workers and widens for high-income workers (Figure 11, Panel B). Both high- and low-income contractors experience the same upturn in distance in the years following the introduction of Form 1099-K.

Fourth, high-income workers’ employee relationships have, by far, the highest likelihood of continuing from one year to the next, and low-income workers’ contractor relationships have the lowest likelihood (Figure 12, Panel B). Interestingly, there is much less dispersion among contractor relationships in this measure of tenure, regardless of a worker’s level of income; both high- and low-income contractors have relatively low rates of tenure. By contrast, low-income workers’ employee relationships are much less stable than those of high-income workers, resembling more those of contractor relationships.

Fifth, and as with tenure, high-income workers’ compensation volatility in employee relationships is very low, compared to all other workers and relationship types (Figure 13, Panel B). Contractor relationships, regardless of a worker’s income level, demonstrate high compensation volatility. Low-income workers’ employee relationships once again appear very similar to those of contractor relationships.

Finally, the deduction-taking behavior I measure for low-income workers in contractor relationships suggests an even greater similarity in the nature of their work to that of employees. The deduction share of gross receipts is closer to zero for low-income workers, and the labor-associated share of total deductions is higher.

IV. AN EXAMPLE OF COST-MOTIVATED SUBSTITUTION AWAY FROM EMPLOYEES TOWARDS CONTRACTORS

This section describes the motivation behind, and results from, a causal analysis of firm behavior in response to an increase in the cost of an employee relative to a contractor. Using a feature of the Medicare eligibility rules that affects small and large firms differently when an employee turns 65, I demonstrate that firms’ decisions about how to classify a worker are not motivated solely by the criteria featured in multi-factor balancing tests but are also influenced by financial incentives.

A. Firm size & Medicare eligibility rules
Medicare is a national health insurance program intended primarily for older individuals. Americans aged 65 and older are automatically eligible for Medicare regardless of where they live, whether they are employed, or whether they are covered by any existing form of health insurance. Prior to becoming eligible for Medicare, many people obtain health insurance coverage through their employer as part of a group health plan offered to employees. When someone is employed and receiving group health insurance coverage through their employer at age 65, they become eligible for Medicare on top of their existing insurance.

Medicare’s rules state that when a person is covered by a group health plan and also eligible for Medicare, the determination of which insurance plan pays first for any medical expense is determined based on the firm’s size. Specifically, if a firm has 20 or more full-time employees, the firm’s group health plan must pay the worker’s medical expenses first, with Medicare covering the remainder. In contrast, if a firm has fewer than 20 full-time employees, Medicare becomes an employee’s primary payer.

This distinction in Medicare’s eligibility rules based on firm size has significant implications for a firm’s finances. Older employees are, on average, more expensive to insure than younger employees. Consequently, whether a firm is large enough to self-insure or whether it purchases insurance from a private company on its employees’ behalf, the premiums that the firm must pay are higher the older are its covered employees. For small firms, the cost of retaining an employee who turns 65 declines significantly, as the firm is not required to provide that employee health insurance coverage and can require that they obtain Medicare coverage instead. Large firms, on the other hand, are legally prohibited from treating older and younger workers differently, and cannot force older employees to disenroll from the group health plan even though they have an alternative insurance option in Medicare. Therefore, large firms face a financial incentive to induce their older employees to disenroll from the group health plan and be primarily insured through Medicare.

One way in which large firms may respond to this financial incentive is to reclassify an older employee as an independent contractor. Typically, group health plans that cover a firm’s employees do not also provide coverage to non-employee workers, including contractors. Reclassifying an employee, therefore, allows the firm to lower its health insurance premiums while still retaining a potentially valuable and highly experienced worker.

**B. Empirical approach to estimate impact of firms’ financial incentives on workers’ classification**

In order to determine whether the financial incentives faced by large firms to reclassify older employees as contractors, we must identify a comparison group of firms and workers that are otherwise similar but where the same incentives are absent. Simply comparing older and younger workers at large firms is unlikely to provide a reliable estimate of the impact of these incentives; apart from Medicare eligibility, many other changes occur when a worker turns 65. For example, for many years, the age at which workers could claim full Social Security retirement benefits was 65.

By distinguishing between small and large firms, the Medicare eligibility rules provide a natural comparison group. Employees at small firms who turn 65 also become eligible for Medicare, in addition to experiencing any other changes that occur at that age. The only meaningful distinction between employees at small firms and those at large firms is the absence of an incentive for firms to reclassify the former as contractors to avoid paying higher health insurance premiums.
The empirical approach I use to estimate the effect of an employee becoming relatively more costly is known as difference-in-differences (DD). The DD estimate of the effect, \( \pi^{DD} \), can be represented by two differences in the probability of an employee being reclassified as a contractor (\( L \)):

\[
\pi^{DD} = (L_{\text{large, old}} - L_{\text{small, old}}) - (L_{\text{large, young}} - L_{\text{small, young}})
\]

The first difference is between the reclassification probabilities for older workers in large and small firms. A naïve empirical approach might focus just on this difference, but it is susceptible to bias. For example, small firms may predominantly be in industries where rates of reclassification are higher, relative to large firms. Failing to account for this difference would yield a misleading result. This is why I subtract from this first difference a second difference: between the reclassification probabilities for younger workers in large and small firms.

To estimate this effect, I rely on a sample drawn from U.S. tax filings that is distinct from the one used in the descriptive analysis described earlier. In this causal analysis sample, I am interested in observing the classification transitions of workers within the same firm as those workers approach and pass the age of 65. Because a worker’s likelihood of being employed at 65 may be influenced by the phenomenon I am interested in studying, I construct the causal sample by starting with a group of workers who are employed at age 60. To distinguish between employees at firms that do and do not face a financial incentive to reclassify at or after age 65, I use information about the employee’s firm at age 60. Though it is certainly possible that an employee may leave that firm before age 65, most workers employed by a firm at age 60 remain with that firm as they approach 65.

In addition to knowing which firm employed the worker at age 60, I also know, in most cases, the zipcode in which a worker lived. Using this information, I am able to gather, from the Dartmouth Atlas Project, annual data on per-patient Medicare expenditures in the hospital service area (HSA) in which a worker lived. As is well-documented, Medicare expenditures for the same procedure, even after adjusting for a patient’s age, race, and sex, vary significantly across the country. This variation is likely to influence firms’ group health insurance premiums as well, making the financial incentives for large firms to reclassify older employees greater in high cost areas than in low cost areas, a feature I incorporate into the analysis.

A significant limitation of the tax filings data is that I am unable to determine the number of full-time employees that a given firm has in a given tax year. This is important because the Medicare eligibility rule turns on whether a firm has 20 or more full-time employees. To get around this in the data I have, and limit the possibility that the firms I identify as “large” may actually be small firms not facing this financial incentive, I err on the side of caution and exclude from the analysis any employee working for a firm at age 60 that issued between 10 and 50 Forms W-2. This conservative approach divides the sample into employees working for large firms (> 50 W-2s) that are very likely to face the incentive, and employees working for small firms (< 10 W-2s) that almost certainly are not.

Using the causal analysis sample, I estimate the following model to recover the DD estimate, \( \pi^{DD} \):

\[
Contractor_{ijst} = \alpha + \gamma_t + \gamma_s + \beta_1 X_j + \beta_2 Z_{it} + \pi^{DD} X_j Z_{it} + \epsilon_{ijst}
\] (1)

The dependent variable, \( Contractor_{ijst} \), is a binary variable equal to 1 if worker \( i \), who was employed at firm \( j \) at the age of 60 and living in state \( s \), transitions from being an employee to an independent contractor with firm \( j \) in tax year \( t \). I am interested in whether a worker is more likely to make this transition after she turns
65 and if she worked at a large firm. I control for factors common to all workers in the sample within a given tax year ($\gamma_t$) or from a given state ($\gamma_{st}$). To identify and account for persistent differences among large firms, I control for a binary variable equal to 1 if firm $j$ issued Forms W-2 to more than 50 distinct individuals ($X_j = 1$) or if it issued forms to fewer than 10 ($X_j = 0$). The binary variable $Z_{it}$ is equal to 1 if worker $i$ is at or above age 65 in tax year $t$. Finally, the DD estimate of the effect, $\pi^{DD}$, is the coefficient on a binary variable equal to 1 if a worker is 65 or older and if they were employed for a large firm at age 60.

C. Evidence of cost-motivated substitution toward contractors

The results of the DD estimation from equation 1 are reported in column 1 of Table 5. Compared to older employees at small firms, older employees at large firms are 0.08 percentage points more likely to transition from receiving a Form W-2 from a firm to receiving a Form 1099-MISC from the same firm after turning 65. This estimate is statistically significant ($p = 0.001$). To understand the magnitude of this estimate, an employee aged 65 and older at a small firm has a 0.27 percent probability of being reclassified as a contractor in any given year; therefore, a 0.08 percentage point increase amounts to a 30% greater likelihood of reclassification for similar workers at large firms.

A different way to estimate the same effect is to do so separately by a worker’s age, instead of considering all workers aged 65 and older together. This approach, called an event study, requires estimating a slightly different model:

$$
\text{Contractor}_{ijst} = \alpha + \gamma_t + \gamma_s + \beta_1 X_j + \beta_2 Z_{it} + \sum_{a=60,a\neq 64}^{70} \pi^{DD}_a X_j [\text{Age}_{it} = a] + \epsilon_{ijst}
$$

The event study coefficients of interest, $\pi^{DD}_a$, compare workers of age $a$ in large and small firms. The estimate for age 64, just prior to attaining Medicare eligibility, is omitted, and all estimates presented are relative to this age. The results of this approach are shown in Figure 15. Beginning at age 65, most of the point estimates are positive, suggesting a higher probability of being reclassified from an employee to a contractor, although only the estimate at age 69 is statistically significant at the 95% confidence level.

Finally, I also consider two additional sources of variation that may bear on the degree of financial incentive faced by firms. The first, as described above, is geographic variation in the cost of medical care across the U.S. To leverage this variation, I estimate a modified version of equation 1, known as a triple-difference (DDD) estimator:

$$
\text{Contractor}_{ijst} = \alpha + \gamma_t + \gamma_s + \beta_1 X_j + \beta_2 Z_{it} + \beta_3 T_{it} + \beta_4 X_j Z_{it} + \beta_5 X_j T_{st} + \beta_6 Z_{it} T_{st} + \pi^{DDD} X_j Z_{it} T_{st} + \epsilon_{ijst}
$$

In this model, I additionally control for whether the rate of per-patient Medicare expenditures in a worker’s HAS is above ($T_{st} = 1$) or below ($T_{st} = 0$) the median during that tax year. The coefficient of interest, $\pi^{DDD}$, yields the effect estimate across three dimensions of comparison: older versus younger workers, large versus small firms, and high versus low healthcare cost areas. I also estimate a variant of equation 3 where the third difference is replaced by a comparison between firms with average wages above or below the median during
that tax year, under the theory that higher wage firms are more likely to offer group health plans to their employees and thus face a greater incentive to reclassify older workers as contractors.

The results of the DDD estimation from equation 3 are reported in columns 2 and 3 of Table 5. Unlike the DD estimates in column 1, neither of these results is statistically significantly different from zero.

While statistically significant and tightly estimated, the results from the main specification translate into a modest effect on the population of workers as a whole: back of the envelope calculations indicate the Medicare payment incentive results in the reclassification of a few hundred thousand workers per year out of U.S. labor force close to one hundred and sixty million.

In addition, the magnitude of the effect belies its importance to the broader inquiry: the monetary value of the Medicare incentive to firms is modest—on average, firms save approximately $20,000 per misclassified worker—so we should expect a correspondingly small change in behavior. However, there are many other, larger financial incentives where the effect on firm’s classification choices are more difficult to observe. For example, the Affordable Care Act only requires firms to offer insurance if the firm employs more than fifty employees. This cut-off creates a strong financial incentive to reclassify the fifty-first worker as an independent contractor, as triggering the mandate could result in hundreds of thousands of dollars in additional cost because firms are required to offer insurance to all employees. If firms respond to the Medicare age cut-off by reclassifying workers, it seems likely that they would also respond to much larger incentives that exist elsewhere in the tax system.

D. Caveats

There are several caveats to this analysis that are worth noting. First, as mentioned previously, I am unable to directly observe whether a firm is subject to the Medicare eligibility rule concerning large firms because I cannot measure the number of full-time employees that a firm has. I adopt a very conservative approach here in focusing on large firms that issue a Form W-2 to more than 50 distinct individuals, but in doing so I also discard data from many firms closer to the true threshold, reducing the statistical precision of my estimates.

Second, while I attempt to use additional sources of variation to more precisely identify a set of firms for which the financial incentives to reclassify will be greatest, these measures are also imperfect. Medicare expenditures are an imperfect proxy for the cost of the private health insurance plans that firms often purchase for their employees. Similarly, I am unable to directly observe whether firms offered health insurance to their employees, and instead rely on whether a firm’s average employee compensation was above the median during that year as a proxy for this.

Nevertheless, despite these limitations, this analysis provides suggestive evidence that firms are swayed in their decision of how to classify some workers—in this case, older employees at large firms—by the relative costs of employees and contractors.

V. POLICY DISCUSSION: IMPLICATIONS FOR TAX TREATMENT OF LABOR INCOME

The results presented in Section III.B demonstrate that employees and contractors have grown more similar over time on several measures of the worker-firm relationship related to financial and behavioral control. This section offers a framework for understanding how this measured convergence in observed characteristics may
relate to possible changes in the underlying, unobserved characteristics that determine a worker’s classification. Using this framework, I propose four non-mutually exclusive hypotheses that may explain these findings. Finally, I conclude with a broader discussion about how the current income tax system’s dichotomous treatment of workers can be reformed or even replaced.

A. Framework for relating the observed convergence to underlying characteristics

To help formalize the discussion that follows, it is useful to distinguish between two distinct but related measures relevant to workers’ classification as employees or contractors. First, let $c$ be a continuous variable representing the degree of control exercised by a firm within a given firm-worker relationship. This variable fully determines whether a worker in a relationship with a firm should be classified as an employee or a contractor. Specifically, assume that, for any worker-firm relationship, a value of $c$ above some threshold $c^*$ means the worker in this relationship should be classified as an employee, while a value of $c$ below $c^*$ means the worker should be classified as a contractor. Crucially, $c$ cannot be directly observed by this researcher, nor can it be easily measured by the IRS without a costly audit, but it is known to the firm when making its decision about how to classify a worker.

In contrast, let $x$ be a continuous variable derived from measures of the worker-firm relationship that can be readily observed by researchers and the IRS in the tax data. Assume that $x$ and $c$ are positively correlated, but the correlation is imperfect: in a given worker-firm relationship, higher values of $x$ suggest it is more likely that a worker is an employee, but the worker’s classification should be based on $c$ and not $x$. While we cannot directly observe how a worker should be classified based on $c$, we can directly observe how a worker is classified in the tax data, which allows us to measure the distribution of $x$ separately for workers classified as employees and contractors.

Suppose that the initial distributions of $c$ and $x$ are as shown in Illustrative Figure 1. In this scenario, employees and contractors are clearly distinguished by the underlying nature of their work and their relationships to firms, as represented by the bimodal distribution featuring two non-overlapping sets of workers with different values of $c$. As a result, we assume for now that the distributions of $x$, the observable proxy measure of the true nature of work, are also non-overlapping for employees and contractors.

The convergence documented here is in the observed distributions of $x$ for employees and contractors, as shown in Illustrative Figure 2. It suggests that workers identified as employees, and those identified as contractors, are now more similar, on average, in their values of $x$ than they were before.

B. Hypotheses that may explain the observed convergence in measured worker-firm relationship characteristics

In what follows, I offer four non-mutually exclusive hypotheses for why the measured convergence in observed characteristics of the worker-firm relationship may be occurring.

Hypothesis 1. An increase in legal uncertainty. The first convergence hypothesis is that the distinction between employees and contractors became less sharp due to changes in the common law definition of a contractor (Illustrative Figure 3). Under this hypothesis, the sharp threshold ($c^*$) that previously determined whether a worker should be an employee or contractor based on the true nature of the work they engage in and their
relationship with the firm is replaced by a range of characteristics, \([c, \bar{c}]\), in which a worker could plausibly be classified as either an employee or a contractor. As a result, a worker who should previously have been unambiguously an employee \((c \in [c^*, \bar{c}])\) might now be appropriately classified as a contractor, and a worker who should previously have been unambiguously a contractor \((c \in [c, c^*])\) might now be appropriately classified as an employee. This change would result in the distributions of \(x\), the proxy measure, becoming more similar for employees and contractors, with the degree of convergence growing with the “fuzziness” of the boundary separating these two worker classes (e.g., the width of \([c, \bar{c}]\)).

**Hypothesis 2.** An increase in intentional misclassification. The second convergence hypothesis is that firms intentionally misclassify workers in ways that are financially advantageous, typically by classifying would-be employees as contractors to avoid complying with costly regulations. Under this hypothesis, the threshold distinguishing employees from contractors remains clear \((c^*)\), but firms take advantage of limited enforcement resources—and the significant cost inherent to the IRS determining the true value of \(c\) in any given case—to misclassify workers, particularly near the threshold. As with the previous hypothesis, this would cause the distributions of \(x\) for employees and contractors to converge.

**Hypothesis 3.** Change in correlation between actual and observed control. The third convergence hypothesis is that the relationship between \(c\), a measure of control within a firm-worker relationship, and \(x\), a proxy for \(c\), is changing over time (Illustrative Figure 4). For example, if the correlation between \(x\) and \(c\) weakens, then the distributions of \(x\) for employees and contractors will begin to converge, even if the underlying nature of their work and relationships to firms remain distinct.

**Hypothesis 4.** Change in the underlying distribution of control. Each of the preceding hypotheses share in common that the true degree of control, \(c\), remains unchanged, and the convergence is caused either by reclassification (hypotheses 1 and 2) or measurement error (hypothesis 3). In contrast, the final convergence hypothesis is that the distribution of \(c\) itself has changed. For example, if the distribution of \(c\) became less clearly bimodal and began to feature significant overlap around the threshold, then the convergence we observe in \(x\) results from convergence in \(c\) itself.

The causal results discussed in Section IV, while certainly not dispositive, suggest that intentional misclassification is likely responsible for a meaningful part of the observed convergence. The code is rife with other discontinuous tax treatment that render misclassification financially advantageous to the worker, the firm, or both; if classification as a contractor enhances workers’ evasion opportunities, in a competitive labor market, the firm can pay them less, just as the worker might share in some of the cost savings the firm enjoys from avoiding a size-based regulation.

**C. Revisiting the dichotomous treatment of workers by the income tax system**

The income tax system’s dichotomous treatment of workers, depending on whether they are classified as employees or contractors, implicitly assumes a meaningful distinction between these two groups in the true nature of their work that justifies their disparate treatment. But the results presented here suggest that this distinction between employees and contractors may be less meaningful now than it was before. If this is true, then maintaining this increasingly arbitrary distinction—and treating workers differently on the basis of it—may exacerbate equity concerns.
For example, consider income tax withholding from employee wages, first introduced by Congress in the Current Tax Payment Act of 1943. The goal of withholding—to ensure that the government is able to collect income tax revenue in a timely manner—is balanced against two constraints: withholding an amount that accurately reflects tax liability at the end of the year, and minimizing the compliance burden. Because employees generally have few cost of business (COB) deductions, their gross income will be very close to their taxable, or net, income, therefore making it relatively straightforward to calculate their likely tax liability. Further, employees usually work for a small number of firms (and often just one), making the cost of remittance manageable for employers.

In contrast, contractors can potentially have significant business expenses, such as if they provide their own tools or workspace, making it difficult to predict their final tax liability. Contractors are also more likely to provide labor to many firms, making it more likely that the contractor, rather than the individual firms, is best positioned to accurately calculate and remit her tax liability. For these reasons, the government’s desire for prompt tax payment yields to the practical challenges of withholding income tax from contractors.

But if the true nature of contractors’ work and their relationships to firms are converging with those of employees, then the rationale for treating employees’ and contractors’ differently for income tax purposes may no longer hold. For example, contractors now provide labor to fewer firms than before, and these firms often have employees on whose behalf they already withhold and remit income taxes. Further, contractors are claiming fewer COB deductions, thereby minimizing the expected gap between their gross and net income. Given these changes, it may be worth revisiting whether the dichotomous treatment of workers for purposes of income tax withholding is still supported by the empirical evidence.

There are alternatives available to the status quo treatment of workers by the income tax system. Recent legal scholarship focusing on the particular needs of platform firms and the workers who provide services through them offers several suggestions. Thomas (2018) notes that platform firms are particularly attractive for solving the withholding problem, as they offer a centralized point at which income taxes can be withheld from the earnings of contractors who use the platform. She also argues for the creation of a standardized COB deduction, which would partially alleviate the compliance costs currently imposed on contractors by having to itemize. Oei and Ring (2018) consider the potential tax administration consequences of reclassifying platform firm workers as employees, arguing that doing so might enhance transparency and the salience of after-tax wages (because employees cannot deduct COB expenses). Though these suggestions are made in the context of the gig economy, they pertain to contractor income more generally.

A different approach that maintains the binary classification scheme is elective worker classification, or a “check-the-box” system. Under such an approach, workers self-select into whichever form of labor is more advantageous, regardless of the nature of their work or relationship to a firm, similar to how firms have several options for which legal form they take. To an extent, this may already be happening, owing to the ambiguity in some industries and jobs about which classification is appropriate. But explicitly recognizing that a worker’s classification need not be related to the actual nature of the work she performs may result in greater worker agency over this decision, and less surprise about her actual classification at the end of the tax year. This approach might also have political economy benefits if it generates legislative pressure to move toward greater neutrality by affording both types of workers access to the same benefits and protections.

Finally, the most significant departure from the status quo would be an income tax system that embraces worker classification neutrality. Unlike the existing system, which treats employees and contractors as two groups whose members face radically different economic realities, a neutrality system does not presuppose that a given worker and a given contractor differ substantially on dimensions relevant to taxation. For example,
under such a system, all firms with at least one employee might be required to withhold and remit income taxes for all employees and contractors; an employee and a contractor who each provide labor to exactly one firm would be treated equally. Similarly, instead of limiting—or, as of the 2018 TCJA, eliminating altogether—COB deductions for employees while allowing them for contractors, all workers could be provided a standardized COB deduction, in the spirit of Thomas (2018). This would keep compliance costs low and limits opportunities for evasion, while allowing any worker with significant business expenses that drive a large wedge between her gross and net income to deduct them.

CONCLUSION

How individuals providing services to firms are classified has significant implications. Workers’ tax treatment and labor protections, and firms’ regulatory compliance costs, all depend on whether a worker is classified as an employee or an independent contractor. Yet, until now, we have lacked the data to measure how this distinction applies in practice.

The findings presented here suggest that employee and contractor relationships increasingly resemble each other, particularly for low-income workers. Most workers who enter into employee or contractor relationships do so with only one or a handful of firms, and they depend on this limited set of payers for most of their income. This runs contrary to the commonly held belief that contractors provide services to a large number of firms; though certainly true for a subset of workers, it is far from representative of contractors as a whole. Likewise, although employee relationships exhibit greater durability and income stability, this gap has narrowed substantially since 2001, as the persistence of contractor relationships has increased while their compensation volatility has decreased. The similarity between employee and contractor relationships—and the arbitrariness of the distinction between the two—is most pronounced among low-income workers.

Furthermore, firms’ decisions about how to classify workers appear to be influenced by factors outside of those found in the balancing tests, including the relative regulatory cost of employees and contractors. Using a natural experiment created by Medicare eligibility rules that differentially affects the cost of retaining older employees among small and large firms, I find that an older employee is more likely to be reclassified as a contractor with the same employer if the firm faces a greater financial incentive to do so. This finding has implications for regulations that change the cost differential between employees and contractors. Firms may respond to such regulations by shifting toward one classification or the other, either by manipulating workers’ classification (an evasion response) or by materially reconfiguring their production process to satisfy the requirements of multi-factor balancing tests (a real response). Either response is undesirable: the first violates basic horizontal equity principles, while the second distorts behavior away from what would have been optimal absent the regulatory change.

The descriptive findings presented here suggest potentially significant structural changes in the labor market and are timely in light of ongoing policy discussions around the gig economy. However, due to limitations in the data I am able to analyze, they are not dispositive. As I detail in Section V, several hypotheses may—separately or jointly—explain the convergence detected in the U.S. tax filing data that I study. Resolving this lingering uncertainty will require additional empirical investigation. Specifically, we must invest in better methods of data collection that can document the true nature of worker-firm relationships, which would allow us to directly measure, rather than merely infer, whether the substance of those relationships has changed over time, and for whom. This improved data collection must take particular care to sample low-income
workers engaged in employee and contractor relationships, as these workers have experienced the greatest degree of apparent convergence. Furthermore, qualitative data collection from firms about how they make worker classification determinations would complement the kind of natural experiments I use here to study firm behavior.

Though the major contributions of this paper are positive, in closing I return briefly to the normative literature on how (and when) the law should impose discrete categories upon a continuum of transactions. In his influential early article in this literature, David Weisbach warns against the use of “platonic notions” as the basis for drawing tax lines. Such an exercise, he says, results in lines that lack normative content and do not advance any of the substantive goals of the tax system. Instead, he advocates evaluating policy solutions on the basis of efficiency, where a contemplated line is most efficient if it minimally distorts individuals’ behavior. Many of the examples of lines in the tax law that he cites fail to meet this criterion, in part because the lines often rely on factors that are easy to manipulate, thereby inducing precisely the behavioral change we hope to avoid.

His primary example of outmoded line drawing—the four-factor test distinguishing partnerships and corporations—bears more than a passing resemblance to the tax law’s current 20-factor test distinguishing contractors and employees. In that instance, the doctrinal ideas distinguishing a partnership from a corporation—e.g., lack of central management and an unlimited life—were codified only to discover that these characteristics describing a platonic notion of organizational structure are, in fact, malleable and responsive to the drawing of the line. Even to the extent that characteristics describing a platonic notion are based in unyielding economic fundamentals, these fundamentals only remain unyielding for so long; over time, large structural changes may occur that render lines based on yesterday’s platonic notions obsolete.

The platonic notions of employees and contractors embodied in the existing lines separating the two may well be outdated in the face of lower barriers to entry for self-employment and fundamental changes in laws governing taxes and social insurance. But it is equally clear that any alternative lines will be drawn in shifting sand, with further upheaval in labor market wrought by technological change on the horizon, and a society unsure whether efficiency is still the paramount criteria and equity the ancillary.

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76 See Weisbach, supra note 3.
Figure 1. Change in number of relationships and recipients since 2001, by classification, 2001-15

Notes. This figure shows the dramatic increase in contractor relationships and Form 1099-MISC recipients relative to employee relationships and Form W-2 recipients since 2001. These counts are based on the universe of tax filings: because payers only issue up to a single form of each type to a payee each tax year, form constitutes a unique payer-payee relationship. The number of recipients refers to the number of unique individual payees who were issued at least one form of that type. Several points are worth noting. First, the number of contractor relationships has grown from approximately 38 to 57 million between 2001 and 2015, an increase of over 40%; most of this growth occurred since 2009. Over the same period, the number of employee relationships declined, reaching its nadir at 2009, the first full tax year of the financial crisis. The number of employee relationships surpassed 2001 levels again only in 2015. Second, for contractors, the number of relationships and the number of workers tracked until 2009, and then began to diverge, suggesting that contractors may have begun picking up additional payers in the wake of the recovery and at a faster rate than employees. This period also coincides with an increase in gig economy firms, although, most of those firms report compensation on Form 1099-K, which is not included.

Figure 2. Histogram of compensation, by classification, in 2016

Notes. This figure shows the distributions of annual compensation—wages for employees, non-employment compensation for contractors—of the sampled relationships. For readability, only compensations below the 95th percentile for wages ($100,703) are plotted. These distributions differ significantly at virtually every point. The median non-employment compensation issued to contractors is $3,321, over $10,000 dollars lower than the median wage issued to employees ($13,482). This difference is even more pronounced at the 75th percentile, which is $39,214 for employees but only $10,915 for contractors.
Figure 3. Histogram of compensation as a share of income, by classification, 2016

Notes. This figure shows the distributions of the “compensation share of income,” defined as the amount of compensation issued in the sampled relationship divided by the total compensation of that type (contractor, employee) earned by the worker in the tax year. Despite the marked differences in the distribution of compensation, workers display a strikingly similar degree of reliance on income from the sampled relationship. The majority of workers of either type essentially rely on a single relationship for all of their compensation.

Figure 4. Histogram of number of payers, by classification, 2016

Notes. This figure shows the distributions of the number of payers by worker classification for the tax year 2016. Several points are worth noting. First, the plurality of workers, of either type, receive compensation from only a single payer. This runs counter to the common perception of contractors performing services for multiple firms. Second, the distributions are extremely similar for most workers: the median number of payers is the same for both types (two), as is the 75th percentile (three). The contractor distribution begins to diverge from the employee distribution only for the 90th percentile (four for employees, six for contractors), and differs drastically at the 95th percentile and above, where a small group of contractors receive income from many firms without an analogous group of employees who receive wages from many employers.
Figure 5. Histogram of distance between workers and firms, by classification, 2016

Notes. This figure shows the distributions of the distance between a worker and a firm, defined as the “crow flies” distance in miles between the centroid of a firm’s zipcode and the centroid of a worker’s zipcode. For readability, only distances at or below the 90th percentile are plotted. The distributions mostly overlap, with the largest differences appearing in the right tail excluded from the plot. For example, the 95th percentile distance for contractors is 330 miles, while for employees it is 204 miles.

Figure 6. Histogram of relationship duration (tenure), by classification, 2016

Notes. This figure shows the distributions of relationship tenure in 2016, defined as the number of years that a relationship sampled in 2016 is consecutively observed prior to 2016. A value of zero means that the relationship was not observed in tax year 2015. A value of 10 means that the relationship was observed consecutively in 10 or more years prior to 2016. As expected, employees have higher values of tenure on average than do contractors. This difference in the mass is most pronounced at the tails: 46% of contractor relationships in 2016 are not observed in the prior year compared to only 33.5% of employee relationships, whereas 16.9% of employee relationships had tenures of 10 or more years in 2016 compared to 8.2% of contractor relationships.
Figure 7. Compensation volatility, by classification, 2016

Notes. This figure shows the distributions of percent changes in compensation relative to the previous year. Percent change is defined as the difference between the compensation in the sampled tax year and the compensation in the prior tax year, divided by compensation in the prior year. This measure is inherently limited to relationships observed in the prior tax year. For readability, percent changes below the 5\textsuperscript{th} percentile or above the 95\textsuperscript{th} percentile of the contractor distribution are not plotted. A value of 1 means that compensation increased by 100\%, or doubled, over the previous tax year. Much of the mass in both distributions is clustered around zero, which implies no year over year change in compensation. However, there are a few differences meriting attention. First, there is significantly more mass to the left of zero for contractors than for employees, meaning that contractors are more likely to see reductions in compensation from one year to the next than employees. Several factors may contribute to this, including minimum wage laws that may prevent downwards wage adjustments for full-time employees, and a well-documented pattern of wage rigidity, particularly downward wage rigidity, for employees. Contractors may also be more likely to work for varying amounts of the tax year, such as a full tax year followed by only a portion of a tax year. Second, as with other metrics, there is a considerable right tail for contractors, suggesting that their compensation volatility is symmetric (e.g., large increases year to year, in addition to large decreases). Finally, the median percent change in compensation for contractors is zero, whereas the median for employees is 2.2\%, suggesting that wage growth for employees is modestly positive, unlike for contractors.
**Figure 8. Histograms of the amount and nature of contractor Schedule C deductions, 2016**

**Notes.** These figures display distributions of profit/loss and deductions in 2016. The sample for all figures is limited to contractor relationships where the payee could be matched to a Form 1040 Schedule C, or approximately 75% of all contractor relationships (See Table 1). Panels A and B split the sample based on whether 50% or more of the payee’s deductions were for “labor” expenses, defined as the sum of the three line item deductions most strongly associated with service provision: car and truck (Line 9), travel (Line 24(a)) and meals (Line 24(b)). See, e.g., Knittel et al.(2012) for an extended discussion of which deductions are associated with service provision. In examining the histogram in Panel A, two points stand out: relatively few contractors claim losses (18%), while those who report majority labor deductions are even less likely to claim a loss (11%). In Panel B, contractors claiming no deductions are dropped from the sample. Among those claiming positive deduction amounts, those with mostly labor deductions are disproportionately likely to deduct less than $500. Panel C reiterates the point that relatively few contractors claim a loss, and low AGI households are about as likely to claim a loss, conditional on filling out a Sch C, as high AGI households. However, Panel D shows that low income households are significantly less likely to claim any deduction.
Figure 9. Income Dependence: Share of total labor income represented by sampled relationship, 2001-16

Notes. These figures plot the average share of a worker’s total labor income, by classification, represented by the sampled relationship. For example, in 2001, the average firm-contractor relationship captured on a Form 1099-MISC or 1099-K represented approximately 65% of a worker’s total contractor income, defined as the sum of compensation reported on the Forms 1099-MISC or 1099-K issued to that worker in 2001. As expected, a given contractor relationship constitutes a smaller share of a worker’s total contractor income, compared to a given employment relationship as a share of a worker’s total employee income. However, this gap has narrowed considerably from 2001 to 2016, as the dependence of contractors on a single contractor relationship has grown. Fluctuations in employees’ dependence on a single employment relationship corresponds to business cycle activity: rising during recessions and declining during expansions. The Form W-2s sampled during a recession are more likely to be the only employment relationship of those workers during the sampled year, for example. Panel B plots the same measure disaggregated by whether the worker’s AGI was above or below the median during that tax year (calculated over the universe of filers). Panel B is limited to contractor relationships that could be linked to 1040 returns (See Table 1). Interestingly, while high AGI workers are distinguishable on this metric, low AGI workers trend similarly. The convergence between employees and contractors observed in Panel A seems to be driven not only by an upward trend in income dependence among low AGI contractors, but also a downward trend among low AGI employees.
Figure 10. Number of Payers: Average number of unique payers, 2001-16

Notes. These figures show the average number of firms or “payers” with which workers contract, by classification. A worker’s number of payers is calculated as the number of unique firms issuing Forms W-2 (for employees) or Forms 1099-MISC or 1099-K (for contractors) to the worker in a given tax year. The number of distinct payers from which contractors receive compensation has declined steadily over the study window, from 3.5 to 2.5 payers. The number of payers per worker with an employment relationship has declined slightly over the same period. The levels themselves are worth noting; even in 2001, the average number of payers a sampled contractor had was relatively small—fewer than four, while the average employee at that time had two employers. Recognizing that the distribution of number of payers for contractors has a long right tail, if we focus on those below the 95th percentile, the resulting average number of payers looks much more similar to employees. Panel B breaks out this trend by a worker’s AGI, again limited to relationships where the payee could be matched to a Form 1040. As with income dependence, low AGI contractors and employees trend similarly. While high AGI employees have the fewest payers, the convergence seems to be primarily driven by the reduction in the number of payers among high AGI contractors.
Figure 11. Distance: Median distance between payer and payee, 2001-2016

Notes. These figures show the median distance between firms and workers, using information contained on the information report (i.e., Forms W-2, 1099-MISC, 1099-K). The distance measure is the cartesian distance, in miles, between the centroid of a worker’s zip code and the centroid of a firm’s zip code. An important caveat is that the address associated with the payer is not always the same as the address associated with the work location. While stability in the IRS data is quite high, the address of the payer is at the EIN level, which is not the same as the plant or establishment level address. This may explain the increase beginning after year 2011, when Form 1099-K was introduced as an additional source of information on contractor income. Form 1099-Ks are typically issued by market makers (i.e., Uber) or credit card companies. It is unlikely that the corporate headquarters of the market maker is close to the recipient’s home address. Despite this limitation, it is striking how the employee and contractor series move together until just after 2011. In general, it has been well documented that the effective size of the labor market is expanding, as commuting times increase and work-from-home arrangements have become more common among both employees and contractors. Panel B shows that the trend in Panel A affects low and high AGI workers in largely the same way, although, again, it is low AGI employees and low AGI contractors that are closer than their high AGI counterparts.
Figure 12. Tenure: Share of workers continuing a relationship from the previous year, 2002-16

Notes. These figures show a simplified tenure metric: the share of relationships that existed in the year prior to the year in which the relationship was sampled. For example, among contractor relationships sampled in 2002, approximately 45% also existed in 2001. Under this definition, the tenure of employment relationships is generally higher than the tenure of contractor relationships, as we would expect. However, this gap has gradually narrowed over the analysis period. In 2016, 63.2% of employment relationships existed in the prior tax year, down from a peak of 70% in 2009. Panel B shows the significant difference in the likelihood of staying in a relationship for high AGI employees and all other workers. While low AGI contractors are the least likely to continue, high AGI contractors have been more likely to continue a relationship into a second year than low AGI employees.
Figure 13. Compensation volatility: Magnitude of percent change from the previous year, 2002-16

Notes. This figure plots the magnitude of the percent change in a worker’s compensation relative to the previous year, for those workers who had a relationship with the same firm in the previous year. For example, on average, the compensation received in a contractor relationship in 2002 was 35% different (higher or lower) than the compensation received in that same contractor relationship in 2001. The volatility of contractor compensation is uniformly higher, on average, than the volatility of employee compensation. However, this gap has narrowed considerably over time as contractor compensation volatility has declined and employee compensation volatility has increased. Panel B here tells a similar story to Panel B in the previous figure. High AGI employees have the lowest volatility in year over year compensation, while all other workers have considerably higher volatility. While volatility for both high and low AGI contractors has decreased, the compensation of low AGI employee relationships has become more volatile, perhaps reflecting wage increases that were delayed in the immediate aftermath of the recession.
Figure 14. Deductions: Change in the magnitude and nature of Schedule C deductions, 2001-16

Notes. These figures show the ratio of deductions to receipts (Panel A) and the share of total deductions that are for “labor” or service associated expenses (See Figure 8 Notes). Contractor relationships are limited to those that could be matched to a Schedule C (See Table 1). In Panel A, which plots the median ratio of deductions to receipts, high AGI contractors claim a higher amount of deductions throughout the series, but all contractors have seen a secular decline in deductions and a corresponding increase in profit share. This may be a selection effect related to the influx of contractors into the economy between 2008-2015 (See Figure 1). Panel B plots the median share of “labor deductions” over the same time frame. While low AGI contractors always have a higher share of labor expenses, and both types of contractors exhibit a secular increase in the labor share of deductions, this share has also grown faster for low AGI contractors.
Figure 15. Transition from employee to contractor status in response to worker Medicare eligibility

Notes. Panel A shows the mean rate of transition from employee to contractor within the same firm, plotted separately by firm size. The sample has five cohorts, drawn by taking a random 10% sample in each tax year 2005-2008 of all employee relationships in which the employee (payee) turned age 60 during that tax year. While the sample of individuals in large firms is much larger than those in small firms, there is an obvious increase in transitions to contractors for the same firm at age 66, the year after the first year the employee is eligible for Medicare. Panel B shows the coefficient estimates for an event-study specification analogous to the classic difference-in-differences, but estimated separately for each age. While not large in magnitude, there is a statistically significant increase in the probability of a transition when the worker at a large firm turns 65. This suggests that, at least on the margin, firms may respond to regulatory cost pressures by reclassifying workers.
Table 1. Sample Construction and Match Rates

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<th>Year</th>
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<th>N Sample</th>
<th>Match rates</th>
</tr>
</thead>
<tbody>
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<td>1099-MISC (2)</td>
<td>1099-K (3)</td>
</tr>
<tr>
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<tr>
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<td>25,142,300</td>
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Notes. All fully-digitized tax years are used in this analysis. The first three columns provide counts of the universe for each form type, while the middle three columns provide counts of the year-stratified 2% sample for each form type. The only restrictions imposed in the initial sampling was a positive amount on the form and that the taxpayer was not deceased in the tax year in which the form was issued. Note that Form 1099-K was not introduced until 2011. The last three columns provide match rates from the information report to the payee’s personal income tax filing (Form 1040). While the match rates to the Form 1040 between contractor and employees are largely similar, the match rates to the 1040 Schedule C are lower. This could be for several reasons. First, many taxpayers with contractor income (especially small amounts of contractor income) do not know that they must file a Schedule C form, and instead report it elsewhere on the 1040, or fail to report it. In addition, prior to 2006, Schedule C was filed under the primary filer’s SSN, even if their spouse had earned the income. This requires an additional link (between the primary filer SSN and the payee SSN) that can reduce the match rate.
### Table 2. Relationship Sample Characteristics

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<th>Year</th>
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<th>Contractor Relationships</th>
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</thead>
<tbody>
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<td></td>
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</table>

**Notes.** This table provides additional information about the year-stratified 2% sample for each relationship type. Col. 2 and Col. 6 are based off only the observations that could be linked to the individual’s Form 1040; the other columns are not subject to this restriction. As expected, the median compensation (at the form level) for employees is significantly higher than for contractors, but the household AGI is higher for contractors. This reflects the fact that, in levels, high-income contractors are the larger group, despite the fact that low-income contractors are the fastest growing group throughout the sample period. For additional demographic information about contractor households, and their relative reliance on contractor income, see Lim, Miller, Risch, and Wilking (2019). Notably, contractors are considerably more likely to have wage income than employees are to have contractor income.
Table 3: Equivalence of Employee and Contractor Relationship Distributions, 2016

<table>
<thead>
<tr>
<th>Measure</th>
<th>Percentile</th>
<th>10th</th>
<th>50th</th>
<th>90th</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Income Dependence (within classification)</td>
<td></td>
<td>-0.014***</td>
<td>-0.005***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.000)</td>
<td>(0.002)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Distance (Miles)</td>
<td></td>
<td>0.000</td>
<td>1.586***</td>
<td>35.776***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.000)</td>
<td>(0.043)</td>
<td>(0.846)</td>
</tr>
<tr>
<td>Compensation Volatility</td>
<td></td>
<td>-0.018***</td>
<td>-0.023***</td>
<td>0.085***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.002)</td>
<td>(0.000)</td>
<td>(0.013)</td>
</tr>
</tbody>
</table>

Notes. Table reports coefficients and standard errors from quantile regressions at the specified percentiles for the indicated characteristics and a binary indicator for a contractor relationship. Income dependence is defined as the sampled relationship's compensation as a share of all compensation from relationships of that type. Distance is defined as the number of miles from the centroid of a firm's zip code to the centroid of a worker's zip code. Compensation volatility is defined as the percent change in compensation from the previous year, for relationships observed in the previous year. * p<0.1, ** p<0.05, *** p<0.01
### Table 4. Causal Analysis Sample Summary Statistics

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Sampled Employees</th>
<th>Average Wage</th>
<th>Median Firm Size</th>
<th>Average Wage</th>
<th>Median Firm Size</th>
<th>% in High-Wage Firms</th>
<th>% in High-Cost HSAs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>3,326</td>
<td>52,691</td>
<td>4</td>
<td>21,555</td>
<td>44</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>3,942</td>
<td>63,177</td>
<td>4</td>
<td>23,403</td>
<td>46</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>4,319</td>
<td>55,936</td>
<td>4</td>
<td>23,141</td>
<td>44</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>4,068</td>
<td>51,680</td>
<td>4</td>
<td>23,841</td>
<td>43</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

**Small Firms (<10 W-2s)**

**Large Firms (>50 W-2s)**

Notes. Causal analysis sample comprises individuals employed at age 60 and observed through age 70. Small firms are defined as those issuing Forms W-2 to fewer than 10 individuals. Large firms are defined as those issuing Forms W-2 to more than 50 individuals. Cohorts are defined based on the tax year when an employee turned 60.

### Table 5. Effect of financial incentives on firms' worker classification decisions

<table>
<thead>
<tr>
<th></th>
<th>DDD: Older Employees at Large Firms in High Medical Cost HSAs</th>
<th>DDD: Older Employees at Large Firms Paying High Wages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td><strong>Estimate</strong></td>
<td>0.000834***</td>
<td>0.0001154</td>
</tr>
<tr>
<td></td>
<td>(0.0002625)</td>
<td>(0.0009873)</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>1,275,670</td>
<td>1,075,701</td>
</tr>
</tbody>
</table>

Notes. Coefficient estimate from difference-in-differences (DD) or triple-difference (DDD) model reported. Robust standard error in parentheses. * p<0.1, ** p<0.05, *** p<0.01.
**Illustrative Figure 1.** Initial distributions of true and proxy measures of nature of work and worker-firm relationship

Distribution of true measure \( (c) \)

![Distribution of true measure](image)

Distribution of proxy measure \( (x) \), separately for workers classified as employees and contractors

![Distribution of proxy measure](image)
**Illustrative Figure 2.** Convergence in the distribution of the proxy measure of nature of work and worker-firm relationship

**Illustrative Figure 3.** Fuzziness in the boundary between employees and contractors