

Corporate Tax Burden on Labor: Theory and Empirical Evidence

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In this article, Jensen and Mathur discuss who bears the burden of the corporate income tax.

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Introduction

Distribution tables allow policymakers to assess where the burden of taxation falls among taxpayers with different income levels and other characteristics. This distributional analysis requires making assumptions about the incidence of each component of the tax system, including which individuals really pay each tax. In some cases, the statutory incidence is a good guide to the economic incidence. Government agencies such as the Congressional Budget Office, Treasury, and the Joint Committee on Taxation routinely assume that individual income taxes are borne by the individuals who are legally liable to pay them. In other cases, the economic incidence is obvious even though it does not match the statutory incidence. Agencies distribute excise taxes to consumers and the employer's share of FICA to employees. Reality is more complicated,¹ but these are fair simplifying assumptions.

When it comes to the corporate income tax (CIT), there is no standard assumption that is uniformly applied by those agencies. Statutory incidence pro-

vides no guidance because corporations are nothing but legal entities, and economic incidence is not obvious. While the CBO and Treasury have historically assumed that the CIT is borne by owners of capital,² the JCT is wary of assigning incidence to any particular group of individuals.³ The JCT recognizes that distributing the tax to all owners of capital is controversial because some economists argue that shareholders could bear a disproportionate share of the burden relative to their ownership of capital or that employees could bear a large portion through lower wages. Rather than assign the burden incorrectly, their distribution tables ignore the incidence of the CIT altogether, an approach that has drawn criticism.⁴

The assignment of the CIT incidence has important implications for the progressivity of the tax, and proper assignment is necessary for understanding how rate changes will affect people at the bottom of the income distribution. Benjamin Harris has shown that the CIT is very progressive under the assumption that the burden falls primarily on capital, less progressive if it falls evenly on capital and labor, and only partially progressive — through the first four quintiles of cash income — if the incidence falls primarily on labor.⁵ In other words, if the burden falls primarily on capital, the top quintile of cash income earners will forfeit a smaller percentage of their income to corporate income taxation than earners in the fourth or even middle quintile.

²CBO, "Average Federal Tax Rates in 2007" (June 2010), at 4, *Doc 2010-13519*, 2010 TNT 117-26; Deena Ackerman et al., "Treasury's Panel Model for Tax Analysis," Office of Tax Analysis Technical Working Paper 3 (July 2008), at 3.

³Edward D. Kleinbard, "Reading JCT Staff Distribution Tables: An Introduction to Methodologies and Issues," JCT Presentation (2008), at 12-13, *Doc 2008-25844*, 2008 TNT 238-28.

⁴Alan J. Auerbach questions the JCT's analysis: "The Tax Reform Act of 1986, which was estimated to reduce individual income taxes and increase corporate income taxes, could illogically be characterized as being revenue-neutral while providing a tax cut for each income class of a nine-class breakdown." Auerbach, "Who Bears the Corporate Tax? A Review of What We Know," National Bureau of Economic Research Working Paper #11686 (2005), at 1. See also Martin Feldstein, "Imputing Corporate Tax Liabilities to Individual Taxpayers," 41 *Nat'l Tax J.* 37 (1988).

⁵Harris, "Corporate Tax Incidence and Its Implications for Progressivity," Urban-Brookings Tax Policy Center (Nov. 2009), at 20.

¹For example, textbook supply and demand analysis indicates that businesses can pass the excise tax onto consumers only insofar as demand is inelastic relative to supply.

In this article, we argue that neither of the agencies' assumptions — that capital bears 100 percent or that no one bears the tax — is valid. Both approaches fail to reflect recent empirical and theoretic research that finds workers bear a large portion of the burden of the CIT. In particular, the empirical studies suggest that distribution tables that allocate 50 percent or more of the burden to labor may be closer to the truth.

Theory and Assumptions

The CIT is statutorily levied on the earnings of corporations, but corporations are just legal structures that bring together shareholders, workers, and consumers. The appropriate question is which of these groups actually bear the economic burden of paying the CIT. Economic theory has recognized that the economic burden could be shifted forward to consumers in the form of higher prices, to shareholders and other holders of capital in the form of lower returns, or shifted backward to workers in the form of lower wages.⁶ Those possibilities make incidence analysis of the CIT difficult.

The tendency to fully attribute the burden of corporate taxation to owners of capital stems from Arnold C. Harberger's seminal 1962 paper on corporate tax incidence.⁷ Harberger, who was the first to construct a general equilibrium model to study the effects of the CIT, built a two-sector (corporate and noncorporate), two-factor (labor and capital) model of a closed economy. He assumed that the supplies of capital and labor were not affected by taxes. He modeled the CIT as a tax levied on one of the factors (capital) in one of the sectors (corporate). Harberger's main conclusion was that to a first approximation, the tax is fully borne by all owners of capital, not just corporate capital. In particular, workers are essentially unaffected by the tax, although they may be slightly benefited or slightly harmed under various assumptions. That conclusion remains widely accepted, despite significant advances in the literature, and motivates the CBO's and Office of Tax Analysis's incidence analysis.

In the years since Harberger's initial analysis, theoreticians have identified and explored many of the assumptions implicit in his work. Alan J. Auerbach, in a review of the literature, highlights no

fewer than eight assumptions.⁸ Of those, the assumption of a closed economy has drawn the most criticism. Free trade agreements have swept across the globe in the decades since 1962, and the United States in particular has come to embody an open economy. U.S. total trade, for example, has risen from 9.6 percent of GDP in 1960 to 30.6 percent of GDP in 2008.⁹ That trend has spurred economists to adopt models that reflect the new reality.

Open economy models require their own assumptions, and disparities among papers that employ open economy models have led to inconsistent results.¹⁰ The main factor that reduces the incidence on capital in an open economy setting is the relative mobility of capital compared with labor. If corporate taxation reduces the return on capital in the domestic economy, capital is free to move abroad. As capital flees, the marginal product¹¹ of the remaining domestic capital increases to the worldwide level, which is unchanged from its level before the imposition of the tax if the United States is too small to affect worldwide capital returns. Nearly all labor, however, is immobile. In the long run, as the stock of capital declines, workers have relatively lower stocks of capital to work with and the marginal product of labor declines. Because wages are assumed to be equal to the marginal product of labor, wages also fall. The net effect is a reduced demand for labor relative to capital and a larger share of the CIT borne by labor.

Even if capital is completely mobile across borders, it may still bear a portion of the CIT, depending on the size of the taxed country. If a country is large enough to influence worldwide capital returns, capital fleeing to the world market will reduce the worldwide marginal product of capital. Thus, even as the marginal product of the remaining domestic capital increases to worldwide levels, those levels are lower than they were before the imposition of the tax, and part of the burden of the CIT falls on capital.

The ease of substituting labor for capital also can shift the burden of the CIT even when capital is mobile. If labor and capital are substitutable, the marginal product of capital will increase after capital flees as described above, but so will the marginal

⁸His paper also provides an in-depth analysis of some of the problems facing theoretical incidence analysis of the CIT. Auerbach, *supra* note 4.

⁹World Bank, *World Development Indicators* (2011).

¹⁰Jennifer C. Gravelle provides a very good review of the theory and its driving assumptions in Gravelle, "International Burdens of the Corporate Income Tax," CBO Working Paper 2010-03 (May 2010).

¹¹The extra output resulting from an additional unit of the input.

⁶We will focus on the burden shared by capital and labor because theoretical papers tend to distribute the consumer burden to capital and labor, and empirical papers assume tradability of outputs prevent firms from passing costs on to consumers.

⁷Harberger, "The Incidence of the Corporate Income Tax," 70 *J. Pol. Econ.* 215 (1962).

product of labor because labor is substituted for the lost capital. The burden of the tax shifts toward capital. If labor and capital are not easily substituted, there will be excess labor after capital flees, and labor will bear a larger share of the burden.

Finally, the factor intensities in the taxed sector will affect the magnitude of the CIT incidence. For example, wages will fall more if the taxed sector is capital-intensive than if it is labor-intensive, because the base that is absorbing the tax is relatively smaller.

It is appropriate to note one overarching issue. All the theoretical and empirical studies discussed in this article examine the effects of the United States changing its corporate tax rate while other countries keep their rate unchanged. In reality, papers by Rosanne Altshuler and Harry Grubert¹² and the CBO¹³ suggest that other countries would lower their rates in response to a U.S. rate reduction. If that happens, a tax cut would do less to draw capital into the United States and labor would experience smaller gains. In the extreme case in which all countries change their rates in rigid conformity with the United States, the impact of the CIT must be the same as in a closed economy model; in that extreme case, there is just a single CIT policy for the entire world, and the world is, after all, a closed economy.¹⁴

Aggregating Results From the Theory Literature

As a result of varying assumptions regarding these five elements — international mobility of capital, international product substitution, size of the country, factor substitution, and factor intensities — recent theoretical papers have reached a wide range of results. Authors of those papers include Arnold Harberger,¹⁵ William C. Randolph,¹⁶ and Jane G. Gravelle and Kent A. Smetters.¹⁷ All these papers find a higher incidence on labor in their open economy model than previous closed economy models did, but the results are sensitive to assumptions. For example, as one would expect, an

assumption that capital is immobile will still shift the CIT burden onto domestic capital, even in an open economy model.¹⁸

Randolph builds a two-country, multi-sector model with perfect capital mobility, perfect international product substitutability, non-fixed world factor prices, a labor-intensive corporate sector, and a factor substitution elasticity of 0.6. Under those baseline specifications, he finds that labor bears 74 percent of the corporate tax burden and that capital bears 33 percent. With alternate specifications, he generates a range between 59 and 91 percent of the burden on labor and 38 to 73 percent of the burden on capital. The labor and capital shares add up to more than 100 percent because corporate taxation introduces economic inefficiency called a dead-weight loss. In the case of the baseline specifications, the dead-weight loss is 7 percent.

In their two-country, multi-sector model, Gravelle and Smetters explore how incidence is affected when foreign and domestic goods are not perfect substitutes and capital mobility is constrained. They find that with moderate capital mobility and moderate product substitution (elasticities of 3), domestic capital bears 72 percent of the corporate tax burden and domestic labor bears 21 percent. When they allow perfect product substitutability and perfect capital mobility, they find results very similar to those of Randolph, with labor bearing 73 percent and domestic capital bearing 35 percent of the burden.

Harberger's model, like Randolph's, has multiple sectors, perfect product substitution, perfect capital mobility, and non-fixed world factor prices. However, he assumes that the noncorporate, non-traded sector is less capital intensive than the corporate sector. In this model, labor bears 130 percent of the corporate tax burden and domestic capital bears 14 percent. With imperfect product substitution, labor bears 96 percent and domestic capital bears 12 percent.

Gravelle conducted a meta-analysis of the recent open economy models, summarizing the state of the literature succinctly: "The studies find common ground when they make similar assumptions about key drivers in their models, but deviations in one or more of those assumptions can yield large differences."¹⁹

Gravelle attempts to remedy the sensitivity of the open economy models by drawing on empirical

¹²See Altshuler and Grubert, "Governments and Multinational Corporations in the Race to the Bottom," *Tax Notes*, Feb. 27, 2006, p. 979, *Doc 2006-754*, or *2006 TNT 39-40*.

¹³CBO, "Corporate Income Tax Rates: International Comparisons" (Nov. 2005), *Doc 2005-23978*, *2005 TNT 228-3*.

¹⁴Harberger, "Corporate Tax Incidence: Reflections on What Is Known, Unknown, and Unknowable," in *Fundamental Tax Reform: Issues, Choices, and Implications* (2008).

¹⁵*Id.*

¹⁶Randolph, "International Burdens of the Corporate Income Tax," CBO Working Paper 2006-09 (2006).

¹⁷Gravelle and Smetters, "Does the Open Economy Assumption Really Mean That Labor Bears the Burden of a Capital Income Tax?" 6 *Advances in Econ. Analysis & Pol'y* 1 (2006).

¹⁸*Id.*

¹⁹Gravelle, *supra* note 10. In addition to the papers covered here, Gravelle reviews Grubert and John Mutti, "The Taxation of Capital Income in an Open Economy: The Importance of Resident-Nonresident Tax Treatment," 27 *J. Pub. Econ.* 291 (1985).

evidence for elasticity assumptions that apply to the United States. She then isolates the incidence estimates from the open economy models where the parameter values match the empirically supported elasticities. Following this method, her results indicate that 60 percent of the corporate tax is borne by capital and 40 percent is borne by labor.

Empirical Approaches

Until very recently, the body of theoretical research — warts and all — was the only source of information about the incidence of the CIT. In the past five years, there has been an attempt to investigate the incidence of the CIT using econometric methods that are informed by the theoretical research. There is good reason to adopt an empirical framework. As Mihir A. Desai, C. Fritz Foley, and James R. Hines Jr. write, “Theoretical efforts to examine this question offer conflicting conclusions and demonstrate an unsettling sensitivity to underlying assumptions. These highly stylized models also leave open the question of whether actual economies, with their messy markets and no less messy tax systems, in fact react to corporate tax changes in the ways that the models predict.”²⁰ This is merely one illustration of the general principle that empirical analysis can deal more accurately with the phenomenon of real experience.²¹

The empirical literature on the CIT that has grown over the past few years abstracts from the effect of the CIT on shareholder returns and consumer prices and focuses on the extent to which workers bear a portion of the CIT through reduced wages. Method varies widely across the studies, yet the studies consistently find that labor overwhelmingly bears the burden of the CIT.

The empirical study of the incidence of the CIT is not without difficulties. Estimations must use national information and national variance in the tax rate.²² Attempting to identify tax effects using tax variance between companies or industries would likely miss some of the broader effects of corporate

taxation. That constraint limits the sample and reduces the historical tax variance that can be used to estimate effects. Moreover, data sets often must be pieced together from countries around the world, and data inconsistencies can affect results. As always, researchers must be wary of the potential omission of relevant variables from the study; if those variables are correlated with tax rates, their omission will bias the estimated effects of tax rates.

Evidence From Empirical Studies

In one of the first empirical studies on the topic, Kevin A. Hassett and Aparna Mathur (one of the authors of this article) use a unique, self-compiled data set on international tax rates to explore the link between taxes and manufacturing wages for a panel of 65 countries over 25 years.²³ The authors estimate how changes in the tax rate affect manufacturing wages five years later.²⁴ The paper looks at changes over long periods because global capital may only gradually flow out of the high-tax and into the low-tax country. There may be a further lag before wages respond to those changes in capital-labor ratios, since it takes time for firms to observe productivity changes and for workers to renegotiate fixed-wage contracts.

Hassett and Mathur find that a 1 percent increase in the corporate tax rates leads to a 0.5 percent decrease in wage rates. For example, if the corporate tax rate increases from 35 to 35.35 percent, which is a 1 percent increase, a \$10-per-hour wage rate will decrease 0.5 percent to \$9.95. Using information on U.S. wages and tax revenues, this estimate implies that every additional dollar of tax revenue leads to a \$4 decrease in aggregate real wages. Examining the effects of tax rate changes on wages one year later, rather than five, they find that a \$1 increase in tax revenues leads to a \$2 decrease in wages.²⁵ They also find significant tax competition between countries within the same income

²⁰Desai et al., “Labor and Capital Shares of the Corporate Tax Burden: International Evidence,” presented at the International Tax Policy Forum and Urban-Brookings Tax Policy Center’s seminar titled “Who Pays the Corporate Tax in an Open Economy?” (Dec. 2007).

²¹Wassily Leontief in a 1982 letter to *Science* bemoaned the prevalence of mathematical theory papers in leading economics journals. His criticism is harsh but may ring true: “Page after page of professional economic journals are filled with mathematical formulas leading the reader from sets of more or less plausible but entirely arbitrary assumptions to precisely stated but irrelevant theoretical conclusions.” Leontief, “Academic Economics,” 217 *Science* 104 (1982).

²²One paper uses variance between state rates rather than national rates; see discussion of Robert Carroll’s 2009 paper below. Reference at note 31, *infra*.

²³Their original 2006 paper was updated in 2010. The 2010 version is described here. Hassett and Mathur, “Taxes and Wages,” American Enterprise Institute Working Paper 128 (June 2006); Hassett and Mathur, “Spatial Tax Competition and Domestic Wages,” AEI Working Paper (Dec. 2010).

²⁴The dependent variable is the five-year (log) average of the nominal U.S. dollar wage rate in manufacturing. The independent variables are the five-year lag of the corporate tax rate, as well as measures of worker productivity and other controls standard in the wage determination literature. They also test various specifications of the dependent variable, for example using annual averages instead of five-year averages. Further, the paper experiments with different measures of the corporate tax rate, such as the effective average and the effective marginal tax rate.

²⁵The authors use annual income regressions and a generalized method of moments specification, instead of the five-year averages.

group — wages fall in one country when another country in the same income group lowers its tax rate. That indicates that the international mobility of capital is driving the large labor response.

While those results seem implausibly large, other empirical papers, using different data sets and covering different time periods, find similarly significant effects. R. Alison Felix uses earnings data from the Luxembourg Income Study for 19 developed countries over the period 1979-2002 to estimate the effect of tax rate changes on annual labor earnings.²⁶ In addition to completing an analysis similar to Hassett and Mathur's, Felix uses education levels to separate the earnings into three groups: low-, middle-, and high-skill workers.²⁷ Her main result is that the estimated effect of a 1 percentage point increase in the corporate tax leads to a 0.71 to 1.21 percent decrease in the annual gross wage. Using the 0.71 percent estimate, she calculates that a \$1 increase in corporate tax revenue reduces wages by about \$4.20. She also discovers that the negative effects on wage income fall on all three types of workers.

Other papers use different methods and find a smaller incidence on workers. Desai et al. use aggregate data on the activities of U.S. companies in approximately 50 countries over 15 years to estimate jointly the impact of the CIT on the wage rate and the rate of profit.²⁸ Fixing the sum of those effects at 100 percent, they find that between 45 and 75 percent of the corporate tax is borne by labor, with the remainder falling on capital and consumers. The benefit of using that data is that the firms themselves are relatively comparable and report similar data. However, the homogeneity of the firms can be a drawback if wage effects at a U.S. multinational corporate sector firm are not representative of wage effects in the domestic economy. Put another way, a subsidiary of a U.S. multinational operating in England, for example, might not

react the same way to tax changes in England as would an English company.²⁹

Wiji Arulampalam, Michael Devereux, and Gioria Maffini observe that workers and firms bargain over the distribution of economic rents.³⁰ They directly estimate how changes in corporate tax liabilities affect the outcome of wage bargaining using firm-level data from 55,082 companies from nine European countries over the period 1996-2003. Rather than estimating the effects of tax rate changes with a tax rate variable as do the other studies we discuss, the authors use the individual firm's actual corporate tax liability per worker. This paper finds evidence that wage bargaining allows corporations to lower average compensation by \$0.49 for every \$1 of increased tax liability. However, that result is not directly comparable to the results from other papers discussed in this article. The authors do not attempt to estimate the effect of taxation that works through a lower capital stock, which is the focus of the other papers reviewed; in fact, they hold to fixed value added per worker, which would pick up those effects.

All the papers discussed so far have used international data. But Robert Carroll uses the variance in taxation among the U.S. states from 1970-2007 to examine the effects of corporate tax changes on labor.³¹ He finds that a 1 percent increase in average state and local tax rates results in a decline in workers' real wages of 0.014 percent one year later.³² Annualizing over a 2,000-hour work year, Carroll calculates wages' tendency to fall at about \$2.50 for every \$1 in additional revenue. Those results are not sensitive to alternative specifications, including examining the wage effects over a longer time period, omitting controls, and using alternative definitions of the tax variable.³³

²⁶Felix, "Passing the Burden: Corporate Tax Incidence in Open Economies," Regional Research Working Paper RRWP 07-01 (Federal Reserve Bank of Kansas City, 2007).

²⁷*Id.* She also completes specifications in which she allows the tax rate to interact with the degree of openness of the economy. Interestingly, Felix finds that the interaction between tax rates and openness is positive and significant. Theory seems to indicate that this should be negative. All of her countries have open economies, so she hypothesizes that "having an open economy shifts the burden of the corporate tax from capital to labor but the degree to which a country is open does not have an impact. This would result in a coefficient close to zero." She continues by explaining that tax avoidance might make the coefficient positive as an open economy might facilitate avoidance.

²⁸Desai et al., *supra* note 20.

²⁹Arulampalam et al., find weak evidence that advantages in wage bargaining allow multinational firms to shift more of the burden of corporate taxation onto workers than do domestic firms. Arulampalam et al., "The Direct Incidence of Corporate Income Tax on Wages," IZA Discussion Paper No. 5293 (Oct. 2010).

³⁰*Id.*

³¹Carroll, "The Corporate Income Tax and Workers' Wages: New Evidence From the 50 States," Tax Foundation Special Report No. 169 (Aug. 2009).

³²*Id.* Carroll uses the real average hourly earnings for production workers as a dependent variable. The model includes state- and time-fixed effects, and controls for the degree of unionization, right-to-work legislation, demography, and other factors.

³³*Id.* Specifically, Carroll tries introducing one- and three-year lags, changing the dependent variable to five-year averages as in Hassett and Mathur, dropping a variable for labor productivity, and defining the average tax rate as a percentage of productivity instead of as a percentage of personal income.

Criticism of the Empirical Literature

Unfortunately, empirical studies encounter their own complex issues. One of the most challenging problems in working with cross-country data is the comparability issue. In the Hassett and Mathur study, the authors attempt to use a uniform definition of manufacturing wages across countries. However, that is fraught with difficulties because some countries use total earnings as their measure of compensation, which includes perks and health insurance benefits, while others use only wages and salaries, which excludes anything beyond the wage and salary component. Further, in some cases the data are for all employees, while in other cases, the data are only for wage and salary workers. The tax data may vary a lot from country to country depending on the regulations applying to different firms and forms of organization. Empirically, there are methods to control for those underlying differences.³⁴ However, one may well be skeptical of the extent to which those cross-country differences are being fully accounted for in any regression method. Aside from that, omitted variables that are correlated with both the tax as well as the wage variables may also cause biased estimates.

Some of those issues have been raised in an overview by Gravelle and Hungerford.³⁵ For example, regarding the Hassett and Mathur study, they argue that using purchasing power parity conversions instead of exchange rate conversions weakens the estimated significance of the effects of corporate tax rate changes. They also warn about possible bias attributable to correlated omitted variables and argue that the estimated effects are implausibly large. They contend that the Felix study suffers from some of the same problems and also does not control for the natural nontax rate variation within each country that can affect wages. They further contend that Felix's data sample is flawed because about a quarter of the sample is drawn from Italy and Mexico and seven of the 10 countries had only one or two years of data.

Gravelle and Hungerford also criticize the Desai et al. paper for fixing the sum of the capital and labor burdens to 100 percent, thereby ignoring the deadweight loss that is sure to accompany corpo-

rate taxation.³⁶ They cite Randolph for finding that results by Desai et al. are not significant if that restriction is dropped.³⁷

Perhaps the most significant concern regarding the empirical studies is that statistical biases may overstate the impact of corporate taxes on wages.³⁸ However, at least two of the papers (Hassett and Mathur and Arulampalam et al.) use standard econometrics techniques to address this issue, and the estimates are still fairly high.

Most of the criticism leveled at the empirical studies of the corporate tax incidence is not unique to studies of this topic. In general, working with data has disadvantages and biases, such as sample selection issues, comparability, measurement error, and omitted variables bias. However, most of the studies mentioned here use standard empirical methods and estimation equations that are frequently employed in the literature relating to wage determination. Further, cross-country regressions or firm-level micro-data regressions are widely accepted in the economics profession. Methods, such as fixed effects regressions, have been developed to account for cross-country differences not accounted for by observed variables. Therefore, it is quite possible that the explanation for the large estimated effects may lie elsewhere.

Aggregating the Empirical Results

The empirical literature as a whole finds much larger effects on labor than general equilibrium models predict under reasonable assumptions. Desai et al. predict a share of 45 to 75 percent on labor. Arulampalam et al. predict a share of 49 percent; however, as discussed above, they likely underestimate the true effects. At the upper end, Felix, Carroll, and Hassett and Mathur show that 200 to 400 percent of the CIT is borne by labor. The implication is that there is a very large deadweight loss associated with corporate taxation. These results are not incompatible with capital bearing a portion of the tax; it would simply imply an even larger deadweight loss.

A natural question is whether a deadweight loss of that magnitude is even reasonable to consider. The early theory literature typically predicts a deadweight loss of less than 20 percent of revenue generated as capital shifts from the taxed corporate

³⁴For instance, the Hassett and Mathur paper, *supra* note 23, uses country-fixed effects that should account for the bulk of these differences. In other specifications, they use a dummy variable to account for the type of coverage.

³⁵See Gravelle and Thomas L. Hungerford, "Corporate Tax Reform: Should We Really Believe the Research?" *Tax Notes*, Oct. 27, 2008, p. 419, *Doc 2008-18748*, or *2008 TNT 209-18*.

³⁶More on deadweight loss below.

³⁷Gravelle and Hungerford, *supra* note 35, indicate Randolph presented this finding at an AEI seminar on March 18, 2008.

³⁸For instance, there is the possibility that corporate tax rates are not exogenous but are in fact correlated with the error term, leading to biased estimates. This is commonly referred to as the endogeneity problem.

sector to noncorporate sectors.³⁹ However, Gravelle and Laurence J. Kotlikoff note that the CIT can lead to shifting between organizational forms within the same sector and predict large dead-weight losses in excess of 100 percent of revenue generated.⁴⁰

Back to Distributional Tables

In view of the results from the theoretical and empirical literatures, the practice of assigning the

³⁹See, e.g., Harberger, "Efficiency Effects of Taxes on Income From Capital," in *Effects of the Corporation Income Tax* (1966), 107-117; John Shoven, "The Incidence and Efficiency Effects of Taxes on Income From Capital," 82 *J. Pol. Econ.* 1261 (1976); Charles Ballard et al., "The Total Welfare Cost of the United States Tax System: A General Equilibrium Approach," 38 *Nat'l Tax J.* 125 (1985).

⁴⁰Gravelle and Kotlikoff, "Does the Harberger Model Greatly Understate the Excess Burden of the Corporate Income Tax? — Another Model Says Yes," NBER Working Paper No. 2742 (1988); Gravelle and Kotlikoff, "The Incidence and Efficiency Costs of Corporate Taxation When Corporate and Noncorporate Firms Produce the Same Good," 97 *J. Pol. Econ.* 749 (1989); Gravelle and Kotlikoff, "Corporate Tax Incidence and Inefficiency When Corporate and Noncorporate Goods Are Close Substitutes," 31 *Econ. Inquiry* 501 (1993).

entire economic incidence of the CIT to capital is certainly simplistic and probably wrong. Advances in theoretical models since the seminal 1962 Harberger paper, as well as the more recent empirical papers on the topic, suggest that labor bears a significant portion of the corporate tax burden. Whether that burden is the more conservative 40 percent predicted by the theory, or the conservative estimate of 45 to 75 percent from the empirical models, there clearly is a need to change the modeling assumptions used by government agencies such as the CBO, the JCT, and Treasury in their distributional tables.

As the Obama administration prepares to overhaul the corporate tax code and engage in corporate tax reform, a more accurate understanding of how any such change may affect people at the bottom of the income distribution is clearly important. By assuming that only capital incomes, which are more concentrated at the top of the income distribution, and not wage incomes, are likely to be affected, we may bias policy and inadvertently harm workers whose wages and well-being depend on the investment incentives that can be undermined by the CIT.