ADVANCES IN TAXATION

Edited by John Hasseldine

ADVANCES IN TAXATION

VOLUME 31

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ADVANCES IN TAXATION VOLUME 31

ADVANCES IN TAXATION

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CONTENTS

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Since 2011, Dr John Hasseldine has been a Professor of Accounting and Taxation in the Peter T. Paul College of Business and Economics at the University of New Hampshire. Previously, he was a Chair and Head of the Accounting and Finance Department at the University of Nottingham Business School. John, a Kiwi, qualified as a chartered accountant in New Zealand and is a Fellow of the Association of Chartered Certified Accountants (FCCA) based in London.

John has served on three government committees in the United Kingdom and was a contributor to the Mirrlees Review of the UK tax system conducted by the Institute of Fiscal Studies. He has been an external expert at the International Monetary Fund, a visiting professor at the University of New South Wales, Sydney, and a keynote speaker at several international tax conferences. He travels widely, speaking at national and global conferences, including one on VAT organized by the OECD, World Bank and IMF, and a conference on dealing with the national tax gap held at the US Library of Congress in Washington DC. He is a coauthor of *Comparative Taxation: Why Tax Systems Differ* (Fiscal Publications, 2017) and an International Fellow at the University of Exeter Tax Administration Research Center.

John received his PhD in Accounting in 1997 from the Kelley School of Business at Indiana University, Bloomington, and his Master of Commerce in Accounting and Bachelor of Commerce from the University of Canterbury, Christchurch, New Zealand.

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INTRODUCTION

I would like to acknowledge the ad hoc expert reviewers listed below for their valuable and timely reviewing activity during 2022–2023.

Cathalene Rogers Bowler (University of Northern Iowa)
Jon Durrant (California State University, Fullerton)
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Susan Jurney (Oklahoma City University)
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In Volume 31, there are eight articles. In the lead article, Kimberly Krieg and John Li examine why Cash ETRs of US domestic firms have decreased over time. They find that, when coefficients are allowed to differ, between an early sample and a later period sample, there is no longer a decline in the unexplained portion of Cash ETR across the two periods, and that the previously observed decline is associated with a change in the relation between firm size and Cash ETR between the two periods. Further analysis suggests that the coefficient on firm size has been declining over the past 20 years, and that controlling for this time trend alone is sufficient to explain the declining trend in Cash ETRs for domestic firms.

Next, Roger Graham, K.C. Lin, and Jared Moore investigate if US effective tax rates on foreign income of US multinationals (MNCs) vary according to the favorability of US macroeconomic conditions relative to those of non-US countries. They use the pre-Tax Cuts and Jobs Act of 2017 regime to show that US effective tax rates on foreign earnings are higher (lower) in periods when macroeconomic conditions in the United States are favorable (unfavorable) relative to those elsewhere in the world. These results imply that firms seek to maximize after-tax returns when making asset allocation decisions, even when faced with US repatriation tax costs. Their findings have implications for the policy debate around the US taxation of foreign earnings and provide a (partial) explanation for the observed lower-than-expected levels of repatriation activity following the implementation of the Tax Cuts and Jobs Act of 2017.

In the third paper, David Tree and Dilin Wang investigate the relationship between firm value and conforming tax avoidance (tax avoidance that does not create a book-tax difference). As conforming tax avoidance has costs, such as lower book income, and these costs potentially lower firm value, it is unclear whether conforming tax avoidance is positively or negatively correlated with firm value. The authors use a measure of conforming tax avoidance recently introduced in the literature and bifurcate tax avoidance into conforming and

nonconforming portions using a large sample. They report that investors place a negative value on conforming tax avoidance for the average firm.

A set of three papers then addresses research questions related to taxpayer compliance. In the fourth article, Stephanie Walton studies the impact of audit protection services which provide additional support for taxpayers in the event of an audit. While these services could provide taxpayers with additional confidence, such services could also foster greater reliance on tax software, possibly resulting in riskier tax decisions. Drawing on risk homeostasis theory, this paper investigates whether the amount of taxes owed and the extent of audit protection services affects taxpayer compliance. The findings indicate that taxpayers are more likely to rely on tax software prompts when there are full audit protection services and a greater amount of taxes owed.

In the fifth paper, Jonathan Farrar, Thomas Farrar, Cass Hausserman, and Morina Rennie examine experimentally the extent to which three potential tax authority interventions encourage the reporting of tax fraud to tax authorities and how two types of guilt feelings are involved in this decision. Using a sample of 728 adult taxpayers in the United States, they find that a cash award, a prosocial award, and a moral suasion message positively influence tax whistleblowing intentions and that the moral suasion effect is mediated by intrapsychic guilt (when an individual violates their moral values) and interpersonal guilt (when one's actions cause harm to another).

In the last article in the group, Ling Tuo and Shipeng Han examine the relation between CFOs with a MST degree and their companies' tax compliance based on 2004–2016 data, finding that CFOs with an MST degree are associated with improved tax compliance, suggesting that a graduate tax education, beyond general accounting education, cultivates graduates with higher levels of professionalism and ethics in the field of taxation. They also report that CFOs' tenure, age, and compensation influence the relation between tax education and tax compliance, suggesting company's compensation and employee policies influence executives' tax decisions.

The seventh article is by Allen Hartt, Jonathan Nash, and Catherine Plante who provide a literature review and analysis of Tax Increment Financing (TIF). While little addressed in the tax literature, TIF is a powerful tax tool used by local governments to spur improvements to a designated area. They report that proponents argue that TIF allows local governments to make investments without affecting previously established government and school district programs, whereas detractors argue that because the TIF designation denies existing overlapping districts (e.g., schools) the benefits of increases in property values, TIF can have a negative impact on a community. Their article reviews the potential costs and benefits associated with the use of TIF, and they find that prior empirical studies on economic outcomes and TIF's fiscal effects are mixed.

Finally, Volume 31 is the 10th volume I have edited over the ten-year period from 2014 to 2023. Accordingly, this volume also includes a note on the tax research scholarship published over this period that details authorship, research themes, and research methods adopted together with some thoughts on the future direction for this journal.

John Hasseldine
Editor, Advances in Taxation

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THE DECLINING CASH EFFECTIVE TAX RATES OF US DOMESTIC FIRMS

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ABSTRACT

We examine why Cash ETRs of US domestic firms have decreased over time. Using samples from two periods – an early period (1994–1998) and a late period (2011–2015) – we regress Cash ETRs in each period on a set of explanatory variables, and allow coefficients to differ across time periods. We find that, when coefficients are allowed to differ, there is no longer a decline in the unexplained portion of Cash ETR across the two periods, and that the previously observed decline is associated with a change in the relation between firm size and Cash ETR between the two periods. Further analysis suggests that the coefficient on firm size has been declining over the past 20 years, and that controlling for this time trend alone is sufficient to explain the declining trend in Cash ETRs for domestic firms.

Keywords: Tax avoidance; book-tax differences; net operating loss; Cash ETR; firm size; domestic firms

INTRODUCTION

The tax avoidance literature largely focuses on the cross-sectional variation of cash effective tax rates (Cash ETRs) to explain the determinants of corporate tax avoidance. However, Dyreng et al. (2017) call attention to time-series variation as well and document a declining trend in corporate Cash ETRs over the past 25 years (1988–2012). This result has been interpreted as suggesting that there is an increase in corporate tax avoidance over time. Surprisingly, Dyreng et al. (2017) find the same decrease in Cash ETRs over time among purely domestic firms as they do among multinational firms.

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Despite a thorough examination into the possible determinants of declining Cash ETRs, Dyreng et al. (2017) find little evidence that these declining trends coincide with legislative and regulatory changes or changes in firm characteristics. They conclude that purely domestic firms do not appear to be at a disadvantage relative to multinational firms in terms of corporate tax avoidance. Because the US statutory corporate tax rate remained constant at 35% of taxable income from 1988 to 2012, we are left with an unexplained puzzle of why purely domestic firms have declining Cash ETRs and how exactly they are achieving lower Cash ETRs over time.

Empirically, it is difficult to identify what tax avoidance strategies domestic firms are employing to reduce Cash ETRs and whether these strategies may be affected by changes in tax laws or financial reporting over time. Some legislative items exist for domestic firms, such as a tax incentive for domestic production activities, yet these do not seem large enough to drive the Cash ETR decline. While Dyreng et al. (2017) find some evidence that increased temporary book-tax differences over time explain a large portion of the Cash ETR decline for domestic firms, we do not know what these differences are from Compustat data alone. Thus, in this paper, we first investigate the decline in domestic Cash ETRs by employing an analysis of the financial statements and tax footnotes of a set of domestic firms that experience large decreases in Cash ETRs over the sample period. This analysis then informs our subsequent empirical tests.

We follow the sample selection process of Dyreng et al. (2017) and identify a sample of purely domestic firm-years from the period 1994 to 2015. We select this time period to ensure that we can obtain Forms 10-K from the SEC's EDGAR database (which begins in 1994) and that the income tax footnotes are consistently reported following ASC 740.[1,2] After confirming a decline in Cash ETRs similar to that found by Dyreng et al. (2017), we limit our sample to observations in two discrete periods, which we refer to as the "early" period (1994–1998) and the "late" period (2011–2015). One reason we select this approach is to limit the number of financial statements we examine in our initial analysis.[3] Additionally, with this approach we are also able to focus specifically on explaining low ETRs in the most recent 5-year period, reducing the influence of the "middle" period (1999–2010) on the overall ETR decline. For our sample, there is a decline in mean Cash ETRs from 30.1% in the early period to 23.5% in the late period.

Our tax footnote analysis suggests several possible factors that contribute to firms exhibiting low tax rates in the late period, including accelerated depreciation, the reversal of previously recorded deferred tax assets (DTAs) (which suggests book income is higher than taxable income due to prior period book write-offs), and the usage of net operating loss (NOL) carryforwards. Specifically, we find that NOL carryforwards are more prevalent in the late period, which may bias the Cash ETR decline that we observe. Since the influence of NOL carryforwards on Cash ETR is a sample selection bias caused by excluding loss years, we remove all observations with a non-zero NOL carryforward balance in the prior year, and confirm that there is a significant (although smaller) ETR decline in the remaining sample. This suggests that, while the prevalence of

NOL carryforwards in the late period does influence the Cash ETR decline, it is not the sole driver of the decline.[4]

Next, we focus our analysis on the remaining set of domestic firms that do not have prior year NOL carryforwards and examine other possible drivers of the Cash ETR decline. We employ a technique similar to that used by Dyreng et al. (2017) of regressing Cash ETR on a set of firm characteristics, but include additional variables that we find present in the small sample of firms for which we review the financial statements. These include income (loss) from discontinued operations, changes in property, plant, and equipment (PPE) and intangible assets, and the level of DTAs in the prior year.

We summarize our results as follows. First, consistent with Dyreng et al. (2017), we find that simply controlling for a set of firm characteristics in a cross-sectional regression is not sufficient to explain the decline in Cash ETR. This suggests that changes in firm characteristics over time cannot explain the decline in ETR between the two periods. Next, we examine the possibility that the ETR decline is driven by changes in the relationship between firm characteristics and Cash ETR over time. Specifically, we allow the coefficients on our explanatory variables to vary by period. We find that, after controlling for our set of firm characteristics and allowing these coefficients to vary, there is no longer a decrease in the unexplained portion of Cash ETRs across the two time periods for this sample. While we find that changes in coefficients for a variety of control variables, including leverage, PPE, and research and development (R&D), are all associated with the Cash ETR decline, we conclude that firm size alone is able to explain the entire ETR decline. Specifically, the SIZE coefficient is decreasing over time, suggesting that larger firms have significantly higher tax rates in the early period, but that this relationship is much weaker in the late period. This differential relation between firm size and Cash ETR between the two periods is large enough to explain the entire ETR decline that we observe in the domestic sample.

Next, we explore the effect of firm size on the Cash ETR decline in more detail. We find that the time series variation in the SIZE coefficient is not only able to explain the Cash ETR decline between the two discrete 5-year periods, but is also able to explain the declining continuous trend over the entire sample period (1994–2015). When graphing the SIZE coefficient and Cash ETR over time (where the SIZE coefficient is from annual regressions of Cash ETR on firm size), there is strong co-movement between the two variables. Further, the ability of firm size to explain the ETR decline is robust to multiple measures of firm size, including total sales, total assets, and the market value of equity. This result also holds for a smaller sample of firms that are present throughout the sample for both the early period and the late period, suggesting that the effect is not solely driven by the changing composition of firms over time.

Finally, we conduct several analyses in an attempt to explain the decrease in the SIZE coefficient over time. We find that the pattern in this coefficient persists when industry fixed effects are added, suggesting that differences in industry composition do not explain the trend in this coefficient. Next, we find that the pattern also persists after controlling for IRS audit rates, suggesting that

declining corporate tax enforcement over time does not explain the decline in the firm size coefficient.

Overall, we identify specific measures, in particular firm size, that appear to be associated with the decline in Cash ETR.[5] Our analysis suggests that the relation between firm size and Cash ETR over time is sufficient to explain the time trend of Cash ETR observed in the past 20 years, even in the absence of other firm characteristics. Our results specifically contribute to the recent literature on declining Cash ETRs over time. Studies in this literature show that a large portion of the ETR decline can be explained by growth in pretax income (Edwards et al., 2021), and the usage of NOL and tax credit carryforwards following loss years (Drake et al., 2020), which are excluded from our sample.[6] We contribute to this literature by demonstrating the relation between firm size and the time series variation of Cash ETRs.

We also contribute to the tax avoidance literature by demonstrating how both the sign and the magnitude of the SIZE coefficient is largely dependent on the time period studied. Nearly all tax avoidance studies use firm size as a control variable, but there is no consensus in the expected sign of this coefficient.[7] In addition, there are competing theories in literature regarding whether firm size can proxy for political cost (i.e., a positive relationship with Cash ETR) or political power (i.e., a negative relationship with Cash ETR) (Belz et al., 2019; Zimmerman, 1983). We demonstrate that: (1) the size and significance of the SIZE coefficient varies depending on which sample period is employed, and (2) there is a high correlation between the time-series variation of the SIZE coefficient and Cash ETR itself. Future studies that employ firm size as an explanatory variable should be aware of these properties because what size proxies for (e.g., political power or cost) may depend on the sample setting. These findings should also be of interest to policy makers and other researchers, who may want to examine how the political power of large, domestic firms has evolved over time. Actions these large, domestic firms may have taken over time, such as increased lobbying or increased investments in internal tax departments, may have implications for other research questions as well. Thus, understanding how large, domestic firms may use their size to their advantage remains an important research question.

PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

In examining the declining trend in corporate Cash ETRs over the past 25 years, Dyreng et al. (2017) separate their sample into multinational and domestic firms. Examining the two subsamples separately, the authors find that the magnitude of the Cash ETR decline is similar for both domestic and multinational firms. Although the authors find that neither the relationship between firm characteristics and Cash ETRs nor changes in the US tax system explain the effective tax rate decline for domestic firms, they conclude that their result for domestic companies "...suggest[s] that the current, almost singular focus on multinational corporations for tax avoidance and low tax rates could be misplaced" (p. 443).[8]

Dyreng et al. (2017) suggest that their results for domestic firms are reflective of the ability of domestic firms to reduce effective tax rates "...via planning or from provisions in the tax laws" (p. 442). Following this proposal, we construct two hypotheses to explain why Cash ETRs have declined over time for purely domestic firms.

First, it is possible that domestic firms exhibit declining effective tax rates due to tax planning (i.e., through an increase in tax avoidance activities). Hanlon and Heitzman (2010) broadly define tax avoidance as the reduction of explicit taxes. They describe tax avoidance as a continuum ranging on the one end from legal tax planning strategies, such as municipal bond investments, to tax evasion and aggressive sheltering on the other end. If over time firms engage in more tax planning activities, or engage in strategies that fall on the aggressive side of the continuum, there would be an increase in tax avoidance over time. Dyreng et al. (2008) describe tax avoidance as the ability to pay low amounts of cash income taxes relative to pretax earnings, and use a cumulative 10-year Cash ETR to measure long-run corporate tax avoidance. Prior literature has also examined the impact of various characteristics such as executives (Dyreng et al., 2010), IRS audit rates (Hoopes et al., 2012), network ties (Brown & Drake, 2014), and financial constraint (Edwards et al., 2016) on tax avoidance, using Cash ETR as a measure.

Given that Cash ETR is widely used as a proxy for tax avoidance, a decline in Cash ETRs over time might suggests that domestic firms have the opportunity to, and are engaging in, more tax planning activities or more aggressive tax strategies over time. This leads to our first hypothesis:

H1. The decline, on average, of Cash ETRs for domestic firms over time is related to an increase in tax avoidance activities.

It is also possible that domestic firms have declining effective tax rates due to structural changes in the relationship between cash taxes paid and pretax income. This could be driven by changes in either the tax law or financial reporting rules over time. First, it is possible that provisions in the tax law may change such that *even if a firm's tax avoidance behavior is held constant over time*, the tax law that applies to this behavior may change in such a way as to cause a change in ETRs. For example, even if a firm does not change the amount of R&D it invests in each year, the definition of what qualifies for an R&D tax credit could change under the Internal Revenue Code. This can apply to explicit changes in the US tax code, changes in the administrative interpretation of provisions in the tax code, or changes in the enforcement of tax code provisions.

Second, it is possible that effective tax rate changes can be driven by changes in financial reporting standards that increase the gap between pretax income and taxable income. For example, when firms record an impairment expense on a fixed asset, the expense is not deductible for tax purposes until the asset is disposed of, which creates a book-tax difference. If accounting standards change such that firms must record impairments more frequently, this will lead to an

increase in book-tax differences that affect the pattern of Cash ETRs observed over time. Thus, our second hypothesis follows:

H2. The decline, on average, of Cash ETRs for domestic firms over time is related to structural changes in the relationship between cash taxes paid and pretax income, due to changes in tax laws or financial reporting standards.

Following Dyreng et al. (2017), several other studies have investigated alternative explanations for the Cash ETR decline over time. Edwards et al. (2021) hypothesize that the Cash ETR decline documented in Dyreng et al. (2017) may be driven by the growth in pretax income over time. The authors show that, when cash taxes paid are not proportionally related to pretax income, changes in pretax income can mechanically cause a change in Cash ETR, which is unrelated to tax avoidance activities or tax legislation. Specifically, if firms on average pay a positive amount of cash taxes, which are independent of pretax income, then growth in pretax income will lead to a decline in Cash ETR. They show, empirically, that a large portion of the downward trend in Cash ETRs is driven by the growth in pretax income, as opposed to tax avoidance. In our study, we remain agnostic about the ability for the growth in pretax income to explain the decline in Cash ETR, and instead seek out other economic explanations for the documented decline in Cash ETR for domestic firms. However, in our empirical analysis, we do include pretax Return on Assets (ROA) in our regression to control for pretax income growth.

Drake et al. (2020) investigate the decline in domestic firms' GAAP effective tax rates (GAAP ETRs), defined as a firm's tax expense divided by pretax income. They analyze tax rate reconciliations to examine items that cause GAAP ETRs to differ from the statutory rate. They find that valuation allowances (VAs) appear to be a common reconciling item and show empirically that GAAP ETRs no longer have a decline after removing the effect of VAs. This suggests that firms release more VAs over time, leading to the ETR decline. The authors also find that this is largely driven by firms using NOL carryforwards.[9] The authors conclude that the GAAP ETR decline is driven by a sample selection effect caused by removing loss years from the sample, where firms may record VAs related to their NOL carryforwards, but retaining years where firms use these NOLs to reduce their tax liability, and release the associated VAs. They also show that this sample selection effect is related to the decline in Cash ETRs over time.

In our study, we consider NOL carryforwards as a possible factor that may influence the decline in Cash ETRs for domestic firms. We examine whether NOL carryforwards can frequently explain large Cash ETR declines in our tax footnote analysis, and remove firms that have NOL carryforwards from the empirical analysis to examine the portion of the Cash ETR decline that is not driven by the sample selection effect documented in Drake et al. (2020).

SAMPLE SELECTION AND TAX FOOTNOTE ANALYSIS

Sample Selection

In selecting our sample of firms, we adhere as closely as possible to the sample selection procedures in Dyreng et al. (2017) to allow for a comparison of our results with theirs.[10] Table 1 presents the details of the sample selection procedures.

We begin with the set of all Compustat firms incorporated in the United States with fiscal years from 1994 through 2015. We choose 1994 as the starting point for two reasons. First, FAS 109 (now codified as part of ASC 740) was introduced in 1992, which changed the financial reporting standards for tax expense recognition. While SFAS 109 does not directly influence the cash taxes paid by a firm, it does affect the recording of DTAs, which we use in our analysis of tax footnotes to identify temporary book-tax differences. Second, any analysis of financial statements requires Form 10-K to be available in EDGAR for both the early and late periods. Since firms were only required to provide electronic versions of their 10-Ks after 1994, we begin our sample period in this year. We further divide the sample into two 5-year periods, the early period and the late period. The early period consists of observations with fiscal years from 1994 through 1998, and the late period consists of observations with fiscal years from 2011 through 2015. Our main analyses focus on the difference in Cash ETRs between these two periods.[11] We begin with a sample of 38,227 (10,273) observations (firms) in the early period, and 22,949 (5,702) observations (firms) in the late period.

Following Dyreng et al. (2017), we exclude observations with assets less than $10 million, and exclude any firms from the financial services (SIC 6000-6799) and utilities (SIC 4900-4999) industries. We also exclude any observations

Table 1. Sample Selection – Full Domestic Sample.

Criteria	Firms		Firm-Years	
	Early Period (1994–1998)	Late Period (2011–2015)	Early Period (1994–1998)	Late Period (2011–2015)
All US incorporated Compustat observations between 1994 and 2015	10,273	5,702	38,227	22,949
Require assets (AT) greater than $10 million	9,562	5,653	34,834	22,625
Require firm to be nonfinancial and nonutilities	6,663	3,626	23,860	14,142
Require cash tax paid (TXPD) to be nonmissing	5,813	3,182	20,854	12,509
Require pretax income (PI) to be positive	5,076	2,521	15,737	8,802
Require each firm to have at least five observations during the sample period	2,812	1,985	11,052	7,775
Require domestic firm-year[a]	1,726	663	5,907	2,238

[a]Must have zero foreign income (PIFO), foreign taxes (TXFO), and deferred foreign taxes (TXDFO) – missing values for these three variables are replaced with zero.

missing Compustat data for cash taxes paid (TXPD). Further, we require observations to have positive pretax income (PI), as effective tax rates are difficult to interpret with negative denominators. Finally, we require each firm to have a minimum of five observations during the sample period (1994–2015).[12] To conform to the Dyreng et al. (2017) definition of purely domestic firm-years, we also require every firm-year observation to have zero foreign income (PIFO), zero foreign tax expense (TXFO), and zero deferred foreign tax expense (TXDFO).[13] We remove observations with a non-zero value for any of these three variables. After the above restrictions, we arrive at 5,907 (1,726) observations (firms) in the early period, and 2,238 (663) observations (firms) in the late period.[14]

Decline in Effective Tax Rates

The focus of our study is the decline in Cash ETRs over time. We compute Cash ETR as follows:

$$\text{Cash ETR}_t = \frac{\text{Cash taxes paid}_t}{\text{Pretax income}_t}$$

Following Dyreng et al. (2017), we plot the mean annual Cash ETR over our sample time period. Fig. 1 shows that, in our domestic sample, there is a clear downward trend in Cash ETR.[15] Although we find a similar time trend to Dyreng et al. (2017), our focus is somewhat different. While Dyreng et al. (2017) look at the entire decline over the sample period (i.e., the slope of the trend line when graphing Cash ETR over time), our focus is on the percentage decline of Cash

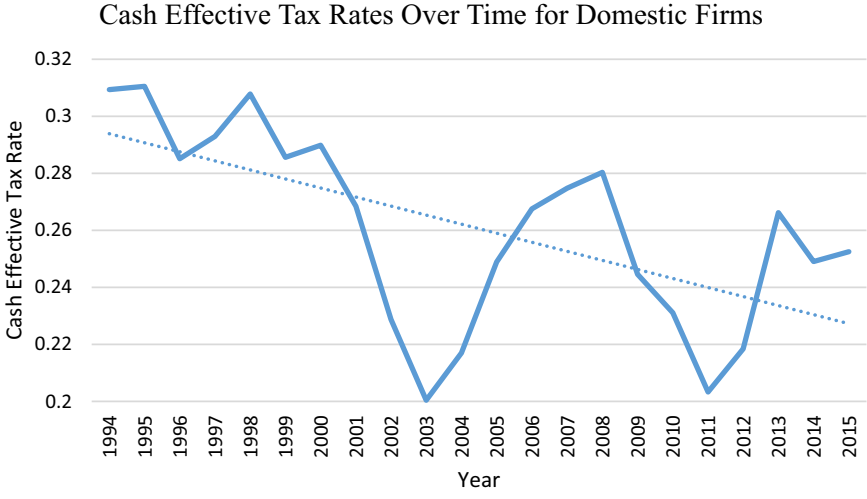

Fig. 1. Mean Cash ETR Over Time. This figure plots the mean annual Cash Effective Tax Rate among all domestic firms in the sample, for each fiscal year between 1994 and 2015.