The Distribution of Payroll and Income Tax Burdens, 1979-1999

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ABSTRACT

This paper presents new evidence on the distribution of income and payroll tax burdens for U.S. households over the 1979-1999 period. During this period, payroll taxes have become an increasingly important component of the tax burden for many low- and middle-income households. The paper develops a new and expanded version of the NBER TAXSIM program that incorporates information on payroll tax liabilities as well as estimates of how the Taxpayer Relief Act of 1997 affected individual income tax liabilities. As a result of the expansion of the Earned Income Tax Credit in the late 1980s and early 1990s and other changes in the federal personal income tax, payroll tax liabilities exceed income tax liabilities for more than two thirds of households with adjusted gross income of less than $75,000 in 1999.

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The relative importance of income taxes and payroll taxes in the federal fiscal system has shifted dramatically in the last four decades. Until 1963, federal receipts from the individual income tax were more than twice as great as federal payroll tax revenues. In 1995, payroll tax receipts (581.8 billion dollars) were virtually equal to income tax receipts (588.7 billion dollars). The rapid rise in income tax revenues in the last three years has not been accompanied by a comparable increase in payroll tax receipts. However, the long-term projections of growing outlays for Social Security and Medicare leave little doubt that the payroll taxes used to finance these programs will remain a very important component of the fiscal landscape.

Distribution analyses of tax reform typically focus on changes in federal income taxes, in part because changes to the income tax are proposed more frequently than changes to the payroll tax. The last change in the payroll tax rate occurred in 1989, and the cap on taxable earnings for the payroll tax is indexed to overall wages in the economy. Focusing on income taxes alone does not provide a complete depiction of the taxes facing households with labor earnings. The expansion of the Earned Income Credit during the 1990s has reduced and in some cases eliminated net income tax liability for many low-income households. Payroll taxes, however, remain significant for most of these households.

This paper presents new evidence on the relative importance of income and payroll tax burdens for households at different points in the income distribution. It describes the construction of an expanded version of the NBER's TAXSIM model, which now includes calculations of payroll tax liability. The analysis considers the income and payroll tax burdens on households at different points in the income distribution for the period 1979 to 1999. We study in particular the impact of the Taxpayer Relief Act of 1997 (TRA97) on the distribution of personal income tax burdens in the late 1990s.

The paper is divided into five sections. The first describes the key provisions of TRA97, and how we have modeled their impact on income tax liabilities. Section two outlines the payroll tax calculator that we use, and explains how we have merged data on individuals who do

not file income tax returns to our primary database on tax returns. It also describes our algorithm for allocating the labor income of joint filers between the two earners in each married couple. Section three presents summary information on the distribution of income and payroll tax liabilities in 1995 and 1999, and notes the impact of TRA97 on the distribution of income tax liabilities. Section four reports income and payroll tax comparisons over a longer time period, and tracks the changing importance of the two taxes at various points in the income distribution. A brief concluding section outlines several issues that remain for future research.

1. Federal Income Tax Changes Enacted in the Taxpayer Relief Act of 1997

Our analysis of income and payroll tax liabilities relies on an updated and expanded version of the NBER TAXSIM program. Feenberg and Coutts (1993) describe this program in some detail. TAXSIM is a detailed federal income tax calculation program that has historically been used to compute federal income tax liabilities for the sample of households that are included in the public use samples of the U.S. Treasury Department's Individual Tax Model. TAXSIM currently offers detailed federal tax calculators for the 1960-1999 period.

TRA97 introduced a number of new federal income tax provisions. It is difficult to evaluate the revenue and distributional effects of some of these provisions, even two years after the passage of TRA97, because they generate deductions or credits for taxpayers that depend on taxpayer attributes that were not recorded on tax returns prior to 1998. This section explains the changing tax provisions as well as our procedure for imputing the distribution of these tax changes.

1.1 The Child Tax Credit

TRA97 included three major changes in the federal individual income tax. The first is the Child Tax Credit, which provides a $500 credit ($400 for 1998) for each qualified child of a taxpayer. To qualify, a child must be under the age of 17. This credit was fully available to married joint filers with modified adjusted gross income (AGI) of less than $110,000, and to

single taxpayers or heads of household with modified AGI of less than $75,000. For each $1,000 of modified AGI in excess of these thresholds, the Child Tax Credit is reduced by $50 per child until the credit is exhausted.

To model the effect of the Child Tax Credit on income tax liabilities, we assume that recognize that the credit is only available for dependent children who are under the age of 17. Not all dependents claimed on tax returns are under the age of 17. We estimate that 82.8 percent of all dependents in 1995 were under the age of 17, so we simply assume that each taxpayer who claims a dependent can claim a 1999 Child Tax Credit equal to .828*500 dollars. This procedure should yield roughly accurate estimates of the total number of Child Tax Credits claimed, although it will understate the variation in the importance of Child Tax Credits across households.

Table 1 presents information on the distribution of under-17 dependents across 1999 AGI categories. The table shows that more than half of these dependents (51.8 percent) are in households with AGI of less than $40,000. It also shows that only 10.5 percent of potentially eligible dependents live in households with AGI of more than $100,000, for which the Child Tax Credit restrictions are likely to apply.

1.2 Reduction in Capital Gains Tax Rates

The second major change concerned capital gains tax liability. TRA97 reduced the maximum tax rate on long-term capital gains from 28 percent to 20 percent, effective May 7, 1997. For taxpayers in the 15-percent income tax bracket, the maximum long-term capital gains tax rate became 10 percent. To provide some information on the distributional effects of this change, Table 1 also shows the distribution of long-term capital gains across households, again ranked by AGI class. The estimates in Table 1 use the distribution of long-term gains across taxpayers in 1995, the last year for which data on individual tax returns is publicly available. The aggregate amount of long-term gains for tax year 1999, however, is estimated by assuming that the same real level of realizations as in 1997 applied again in 1999.

Table 1 shows that the beneficiaries of the Child Tax Credit and the reduced tax rate on long-term gains are very different. More than half of the realized long-term gains are reported on tax returns with AGI of at least $500,000. Only 17.3 percent of long-term capital gains are reported on by households with AGI of less than $100,000.

1.3 TRA97 Provisions for Education Tax Credits

The third significant tax reform that was enacted in TRA97 concerned incentives for college attendance. Two new tax credits were designed to encourage taxpayers to attend colleges and other institutions of higher learning. The two specific credits that are most significant are the HOPE Credit and the Lifetime Learning Credit (LLC). The HOPE credit is a non-refundable credit of $1500 per student. It can be used to offset educational expenses in a student's first two years of post-secondary education. It is a 100 percent credit on the first $1000 of tuition and fees, and a 50 percent credit on the next $1000 of such fees. The full value of the credit is available married joint filers with modified AGI of less than $80,000, and it is completely phased out for married joint filers with modified AGI of more than $100,000. For heads of household and single filers, the HOPE Credit phases out between $40,000 and $50,000 of modified AGI. The HOPE Credit can be claimed by the taxpayer, the taxpayer's spouse, or on behalf of any of the taxpayer's dependents.

The phase-out of the HOPE Credit results in an extra marginal income tax rate of 7.5 percent per credit beneficiary (some tax returns might have more than one beneficiaries) for taxpayers in the relevant AGI range. Consider a family with two children in college and an adjusted gross income of $90,000. Before TRA97, this household faced a marginal federal income tax rate of 28 percent on labor income. The HOPE phase-out raises this tax rate to 43 percent (28 + 2*7.5 percent, reflecting two children eligible for the HOPE credit).

The Lifetime Learning Credit, like the HOPE Credit, is phased out for married joint filers over the $80,000-$100,000 modified AGI range. The phase-out raises marginal tax rates by 5 percentage points for affected households over this range. The LLC is a refundable twenty

percent credit against tuition and fees paid to institutions of higher learning. The LLC is computed on a per-return basis; unlike the HOPE Credit, a taxpayer with two dependents in college does not receive twice as much credit as one with a single dependent in college. A taxpayer may not claim both a HOPE Credit and a Lifetime Learning Credit for the same eligible student. Because the HOPE Credit offers a 100 percent or a 50 percent credit, depending on the amount of tuition outlays, and the LLC offers only a 20 percent credit, those who can use the HOPE Credit will presumably choose to use it before utilizing the Lifetime Learning Credit. Unlike the HOPE Credit, the LLC can be claimed for more than two years of higher education.

A definitive analysis of the distributional effects of the new provisions in TRA97 will not be possible until the Treasury Department releases a sample of 1998 tax returns. This is not likely to happen until 2001. In the meantime, we need to impute information on the presence of dependents who are attending college and therefore eligible for the LLC or HOPE Credit to tax returns that were filed in 1995.

Our imputation combines data from the 1995 SOI tax filer data base, with information from the coincident Current Population Survey (CPS). The procedure involves several steps. First, we construct the universe of taxable households for 1995. This consists of the set of households filing tax returns, plus a set of nonfiler households that we draw from the CPS. (We describe our nonfiler imputation in more detail below.) We remove any adult dependents from this file, and we assume that all of the remaining dependents are under the age of 24.

The second step in our procedure involves imputing ages of children (for households with dependents) and adults to potential tax filing units. We do this using the March 1995 CPS. For tax filers who claim dependents, we know the number of dependents reported on the taxpayer's tax return, as well as the taxpayer's income. We randomly match each tax filer in the SOI to a household in the CPS with the same number of dependents and in the same income class. (We use broad income categories: < $25,000, 25-50,000, 50-75,000, 75-100,000, and > $100,000.) This imputation permits us to assign each household with dependents a number of dependents

who are aged 17 or less, and a number of dependents aged 18-24. We follow a similar procedure, using age and the number of persons in the tax-filing household, to impute ages for adults in households without dependents. We impute the number of individuals between the ages of 18-24, 25-29, 30-34, 35-64, and >65. After this step in our process, we have a data file based on both tax returns and CPS records (for nonfilers) with imputed ages for all household members.

The third step in our algorithm uses data on age-specific rates of college attendance in 1995 for those over the age of 23, drawn from U.S. Department of Education (1997), along with data on college attendence rates by age for those under 24 from the Current Population Survey, to impute college attendance to all of the individuals in our data file. There are substantial numbers of college students over the age of 24. For the 25-29 age group, for example, the 1995 college enrollment rate was 11.2 percent. This drops to 5.7 percent for the 30-34 age group, and 2.1 percent for those over the age of 35.

Fourth, we need to determine whether someone who is attending college is eligible for the HOPE or the LLC. We assume that anyone between the ages of 18 and 23 who is in school is in an institution of higher learning that would qualify for the LLC or HOPE Credit. Since HOPE is more generous than LLC, we assume that anyone who is eligible for both credits will claim the HOPE Credit. We assume that individuals aged 18, 19, 20, and 21 who are in college have a 50 percent chance of being eligible for the HOPE Credit. We assume that those who are not eligible for the HOPE Credit receive the LLC.

Finally, we assume that anyone who is eligible for the HOPE Credit or the LLC claims the maximum amount of these credits. Since the U.S. Department of Education (1997) reports that the average tuition at private colleges in 1995 was $9338, and the average tuition at public colleges was $1975, this seems like a plausible assumption.

Table 2 shows our estimates of the number of taxpayers who are able to claim the HOPE or the Lifetime Learning Credit in 1999, once again ranked by AGI. We have "aged" the 1995 tax returns to 1999 before preparing this table. The U.S. Department of Education (1997) reports

that in 1995, there were 14.3 million students enrolled in colleges and other institutions of higher education. Our results for 1999, which show a total of 14.55 million students at these institutions, are based on expanding the 1995 population to its 1999 levels.

Table 2 shows the number of dependents who are attending college, as well as the number of "non-dependents" (either 18-24 year olds living independently, or persons over the age of 24) at institutions of higher education. Although dependents in higher income households are more likely to attend college, this does not have a substantial effect on the distribution of HOPE and LLC eligibles across the income distribution. Approximately eighty percent of the dependents who attend college are in households with AGI of less than $100,000. An even higher fraction of non-dependents attending college, ninety-five percent, are in households with incomes below this threshold.

The last column of Table 2 shows the number of HOPE and LLC claimants for whom we find that the availability of these credits would reduce tax liability. This is only a fraction of those who are eligible for the credit. For example, in the $10-20,000 AGI category, there are a total of 2.11 million college enrollees. Only 1.51 million of those enrollees can benefit from the HOPE and LLC, however, because the others are in households with too little tax liability.

1.4 "Aging" the 1995 Individual Income Tax Model

Tables 1 and 2 present households arrayed by our estimate of their 1999 Adjusted Gross Income (AGI). To construct a distribution of taxpayers for 1999, we "age" the set of tax returns filed in 1995 using a technique similar to that developed by Lindsey (1987) in his study of how the 1981 Economic Recovery Tax Act affected reported taxable income. The 1995 SOI Individual Tax Model data, our starting point, is a stratified random sample of 1995 tax returns. This data set over-samples high income tax returns, since these returns typically involve more complex tax issues than lower tax returns.

We expand the number of returns in the 1995 tax file to correspond to the number in more recent years by following two procedures. For 1996 and 1997, we use the number of

individual income tax returns filed, relative to the number of such returns filed in 1995, to increase the number of tax returns in our sample. Second, for years since 1997 when we do not even have preliminary estimates of the number of tax returns, we increase the number of tax returns by 1.9 percent per year.

To extrapolate the income values on 1995 returns as we project them to 1999, we divide adjusted gross income (AGI) into two components: realized capital gains and other income. We project non-gain AGI from 1995 to 1996 and 1997 using data on non-gain AGI as reported in aggregate SOI tables on tax returns filed in each of these years. We project non-gain AGI for 1998 and 1999 using the growth of personal income in the national income accounts.

To project realized capital gains, which have been extremely volatile in recent years, we use actual realizations for 1996 and 1997 to "scale up" 1995 realizations. For 1998 and 1999, we assume conservatively, that realized capital gains remained at their 1997 level. While strong stock market returns in 1998 and 1999 (to date) might suggest higher capital gain realizations in those years than in 1997, 1997 was also the year of a capital gains tax reduction. This may have led to an unusually high level of capital gain realizations given the underlying level of realizable gains. These projections for aggregate capital gain realizations are used to generate a distribution of taxable capital gains for taxpayers in the years 1996-1999.

We should note that while "aging" algorithms like the one that we describe here are designed to track variation in the aggregate amounts of different types of income, they provide no insight on changes in the distribution of income across taxpayers in different AGI categories. Thus, we are assuming that the 1995 distribution of each income type across categories has persisted in more recent years.

2. Calculating Payroll Tax Liabilities

The payroll tax is a much simpler tax than the income tax. It applies at a flat rate on earned income up to a threshold level, and there are no deductions or special definitions of

income categories as there are in the income tax. While it is straightforward to calculate payroll tax liabilities given a household's earnings profile, there are two important problems that arise in estimating payroll taxes for a sample of income tax filers, such as that provided by the SOI Individual Income Tax Model.

First, some individuals and households who have no personal income tax liability pay payroll taxes. Such payroll taxpayers would not appear in the Individual Tax Model data file. Estimating the distribution of payroll tax liabilities therefore requires augmenting the SOI file with another database that contains information on "nonfilers," those who do not file federal income tax returns.

Second, individuals pay payroll taxes, while federal income taxes are paid by individuals or by married couples. On the income tax returns of married joint filers, the wage and salary income of both spouses is aggregated. A couple with earnings of $100,000 could pay as much as $15,300 in payroll taxes, if these earnings were equally divided so that each member of the couple earned $50,000, or as little as $11,878, if all of the earnings were attributable to one spouse. In this case, Medicare payroll tax payments would be $2,900, but OASDI taxes would be $8,978 (12.4%*(72,400)), where $72,400 is the current Social Security earnings limit. To estimate payroll tax burdens, we must estimate the division of labor income between members of each pair of married joint filers. This section describes how we address each of these issues.

2.1 Adding Nonfilers to the Treasury Tax Model

In 1995, single persons with adjusted gross income of less than $6400 ($7350 if the person is 65 years or older), and married joint filers with AGI of less than $11500 ($13000 if both taxpayers are 65 or older), did not need to file federal income tax returns. Individuals and couples with incomes below these thresholds might nevertheless have payroll tax liabilities if they had earned income.

To identify nonfiler households, we rely on information that the Census Bureau includes in Current Population Survey data files. Recent March CPS data sets include an imputation,

based on the CPS respondent's income and probable income tax withholding, for whether or not the household is likely to have filed a tax return. This imputation recognizes that many individuals with no income tax liability and no legal requirement to file a federal income tax return may file to obtain a refund of wage withholding. The Census has access to the IRS master file, and it can therefore test the quality of its imputation using actual tax filing data. The Census imputation relies on self employment income in excess of $400 ($1992), interest, dividends, and other types of capital income in excess of $1,000, and wage income in excess of greater than $1,000, to impute "filing" as a taxpayer's status. This imputation apparently does a good job of reflecting the number, incomes, ages, and family structure of actual filers and non-filers, and it is likely to be much more accurate than imputations based solely on publicly-available data sets.

The most recent public use Individual Income Tax model is that for the 1995 tax year. We therefore use the March 1996 Current Population Survey, which reports information that relates to the 1995 tax filing year, to identify nonfilers for the 1995 tax year. We extract individuals over the age of 18, single or married, who are identified as nonfilers in the CPS file. The Individual Income Tax model file is a stratified random sample of U.S. taxpayers, with sampling weights for each tax return. These weights are used in computing aggregate totals, and distribution tables, from this sample of income tax returns. Similarly, the Current Population Survey is a stratified random sample of U.S. households. We use the Supplemental Weight reported in the CPS file as the analogue to the tax model sampling weight when we add nonfilers to the tax return sample. This procedure results in 17.9 million nonfiler households in 1995.

Table 3 shows the distribution of nonfilers across AGI categories in 1995, along with information on the percentage of households in each income class who are nonfilers. Our results suggest that roughly half of those with positive incomes of less than $10,000 do not file tax returns. The fraction is lower, roughly twenty-five percent, among those who have negative incomes, because negative income is often associated with activities that require filing tax returns or that produce tax benefits. The broad findings on the number of nonfiler families and their

distribution across AGI categories are similar to those in Feenberg, Mitrusi, and Poterba (1997) for the 1992 tax year.

2.2 Dividing Labor Income Between Members of Married Couple

The second imputation that we need to carry out concerns the division of labor income between members of married couples. For single tax filers, no imputation is necessary: the tax return shows total wage income, and hence we can compute payroll tax liabilities. For married joint filers, however, the tax return only shows total wages, and without information on the division of wage income between spouses, we cannot calculate the household's payroll tax liability. There are some special cases, for example when the combined earnings of the two earners falls below the taxable earnings maximum for the payroll tax, when we can compute payroll taxes from only the income tax data. In general, however, we need to augment the information in the SOI Individual Tax Model datafile.

Imputing the distribution of labor earnings requires us to construct a synthetic match between tax returns in the ITM database and households in another data set that contains information on division of labor income. There are three potential data sources that we can use to divide earnings among members of married couples. The first is the Current Population Survey (CPS), which has been used in prior work such as Feldstein and Feenberg (1996) and Feenberg, Mitrusi, and Poterba (1997). The difficulty with the CPS data is that earnings are top-coded, which makes it impossible to allocate earnings for some high-income households. In 1994, the CPS variable for total wage income was topcoded for one spouse in 3.7 percent of married couples, and for both spouses in 0.12 percent of married couples. Merging the CPS data with the SOI tax model data therefore undercuts one of the most important strengths of the SOI data, namely its detailed information on high-income households. More importantly, it is precisely the high-income households, with wage income in excess of the payroll tax maximum, for whom the issue of dividing wage income is most important.

A second potential data source is the Survey of Consumer Finances (SCF), which records earnings for each spouse in married couples. The SCF, like the SOI tax model, over-samples high income households and thereby provides a reasonable sample for allocating the labor income of high-earning couples. The difficulties with the SCF are that it is only conducted every three years and that it is only available since 1983. However, the distribution of earnings between members of married couples appears to be relatively stable across years. We therefore rely on the various SCF data sets, interpolated where necessary, to divide wage income for married couples.

A third data set that can be used to address the issue of earnings division is the U.S. Treasury's masterfile. This data file, which is not available to researchers outside the Treasury, merges W-2 filings with individual income tax returns (1040s). This data set provides precisely the information that is needed to estimate the division of earnings. The difficulty with this data set is that it cannot be analyzed without cooperation from the Treasury Department. We were fortunate to obtain tabulations from the Treasury masterfile for tax year 1995. We use these tabulations to divide the earnings of married joint filers in the 1995 SOI tax model datafile, and also to evaluate the adequacy of other data sources that we can analyze in other years.

Table 4 presents information on the division of labor earnings as shown in the 1995 Treasury masterfile and in the 1995 Survey of Consumer Finances. The table shows, for the AGI category indicated in each row, the ratio of the average earnings of the lower-earning spouse in each couple to the couple's average total earnings. Earnings, for this purpose, include both W-2 income as well as Schedule C self-employment income. The table shows a clear pattern in the share of earnings that is due to the lower-earning spouse. This share rises at low values of family AGI. At roughly $40,000 of AGI, the average earnings share of the lower-earning spouse enters a relatively narrow range, from 20 to 25 percent, and it remains in this range until family AGI reaches roughly $130,000. At family AGI levels above this range, the average earnings share of the lower-earning spouse declines, and it reaches relatively low levels at very high AGI ranges.

The patterns in the SCF data and in the Treasury Masterfile data are very similar. At very low and very high levels of household AGI, the earnings of the lower-earning spouse account for a small share of total earnings. The highest share of second-earner earnings is found in roughly the same income categories in the SCF as in the Treasury masterfile. This is encouraging evidence on the potential of using the SCF to allocate labor earnings in earlier years. We should note, however, that there are some differences between the SCF and the Treasury data. There are more low-income households in the SOI masterfile than in the Survey of Consumer Finances. This is largely because the SCF income concept that we use to classify households includes welfare as a source of income, while the tax return data does not include this as income. This issue largely affects the bottom of the income distribution, however, where the distribution of wage earnings between two members of a couple does not affect the couple's total payroll tax liability.

Figure 1 presents more detailed information on the pattern of earnings divisions in the 1995 SCF. It shows the fraction of married couples in which the lower-earning spouse earns zero, the fraction with the lower-earner between 1 and 25 percent of the total earnings, and the fraction with the lower earner between 25 and 50 percent of total earnings. There is again a pronounced pattern in the graphs, with the share of couples in which the second earner accounts for between 25 and 50 percent of the total earnings peaking at family income between $50,000 and $115,000. The share of married couples in which the lower-earning spouse earns zero is U-shaped, with relatively high values at low AGI levels and again at high AGI levels.

We use the information in Figure 1 to divide the earnings of joint filers in 1995 between each spouse. We have information on three probabilities for each AGI category: the probability that the lower earner reports zero earnings, the probability that the lower earner reports between 1 and 25 percent of total earnings, and the probability that the lower earner reports between 25 and 50 percent of total earnings. We use these probabilities, and the additional assumption that the distribution of earnings splits within the 1-25 and 25-50 intervals is uniform, to allocate labor

earnings for 1995. We assume that the division of labor earnings that we find for 1995 applies in all years since 1995, although the aging algorithm that we described above changes the total amount of labor income that households receive in later years.

3. The Distribution of Income and Payroll Tax Liabilities, 1995 and 1999

We can use our expanded TAXSIM program to consider the impact of various income tax provisions on the changing distribution of income tax liabilities in the late 1990s. We begin by describing the distribution of income taxes and payroll taxes in 1999. Table 5 shows our estimates of this distribution. The table includes an entry for the fraction of households for whom the payroll tax is greater than the income tax, again divided by AGI categories. The table shows that ...

To provide some insight on the impact of the 1997 Taxpayer Relief Act on the distribution of tax burdens, we consider the change in household tax burdens between 1995 and 1999. Table 6 presents the distribution of such changes, with households ranked by their 1999 AGI. The table also decomposes the change in income tax liability between these years into three components. These are the change due to the enactment of the child credit in 1997, the change due to the reduction of the top tax rate on capital gains, and the change due to the enactment of the HOPE and Lifetime Learning Credits.

The results in Table 6 show that for high income households, TRA97 had a modest effect in reducing tax liabilities through the reduction in capital gains tax rates. For lower and middle-income taxpayers, the new credits had a more important impact on tax burdens. For the typical taxpaying family with an AGI of between $50,000 and $75,000 in 1999, for example, the net effect of the HOPE and Lifetime Learning Credits was a reduction of XXX in tax liabilities.

4. Payroll Taxes and Income Taxes: The 1979-1999 Experience

The foregoing analysis focused on income taxes and payroll taxes in the 1990s. We can extend the same approach to consider tax burdens in a longer time period. We continue to use our estimate of the income distribution in 1995, but we now apply the income tax and payroll tax rules from earlier years. We age the distribution of taxpayers from 1995 to other years using changes in the Consumer Price Index. Our calculations therefore indicate what would have happened if tax codes from other years, indexed for inflation but not for other changes in the economy, had applied to the tax year 1995. By holding the income distribution constant, we are able to focus on the impact of tax law changes alone.

Table 7 shows the average personal income tax liabilities, and payroll tax liabilities, for households at different points in the income distribution and under tax rules for different years.

5. Conclusions and Future Directions

We have presented new evidence on the distribution of income and payroll tax liabilities over the last two decades. The payroll tax increase that was enacted in 1983, coupled with the expansion of the Earned Income Tax Credit in the mid-1980s and the early 1990s, has made the payroll tax a more significant tax than the income tax for a very substantial fraction of U.S. households.

The tabulations of income and payroll tax burdens in this paper raise a number of issues for further research. First, this analysis does not draw any conclusions about the ultimate incidence of different taxes. If labor supply is elastic, then the payroll tax will ultimately paid in part by labor, and in part by capital. The incidence of the personal income tax on labor income is subject to the same issues of analysis, and there are even more complex issues associated with the analysis of capital income taxation. A natural direction for further extension is combining the current detailed tax calculation algorithm with some crude assumptions about tax burdens.

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Table 1: Distribution of Child Credit Claims, and Taxable Capital Gains, by AGI Class

1999 AGI Category (000s)	Number (Percent) of Children Under Age 17	Long-Term Taxable Capital Gains ($ billions) (Percent of Total Gains)
< 10	10.6 (15.7%)	$7.7 (2.4%)
10-20	9.4 (13.9)	3.0 (0.9)
20-30	8.3 (12.3)	4.2 (1.3)
30-40	6.7 (9.9)	4.8 (1.5)
40-50	6.2 (9.2)	4.0 (1.3)
50-75	12.1 (17.9)	15.8 (4.9)
75-100	6.9 (10.2)	15.8 (5.0)
100-200	5.9 (8.7)	42.1 (13.2)
200-500	1.2 (1.8)	50.4 (15.8)
500-1000	0.2 (0.3)	30.0 (9.4)
> 1000	0.1 (0.1)	140.6 (44.1)
All Categories	67.5 (100)	318.5 (100)

Source: Authors' tabulations using data from 1995 Treasury Individual Tax Model and 1995 Current Population Survey, "aged" to 1999. Long term capital gains includes positive gains for those taxpayers with positive marginal tax rates on such gains.

Table 2: Eligibility for HOPE and Lifetime Learning Credit, by AGI Category, 1999

1999 AGI Category (000s)	Number of Dependents Attending College (million)	Number of "Non-Dependents" Attending College (million)	Number of HOPE and LLC Claimants (million)
< 10	0.54	2.66	0.36
10-20	0.45	1.66	1.51
20-30	0.56	1.10	1.55
30-40	0.53	0.73	1.09
40-50	0.52	0.55	0.95
50-75	1.37	1.02	1.74
75-100	0.86	0.43	1.21
100-200	0.92	0.35	0
200-500	0.18	0.07	0
500-1000	0.03	0.01	0
> 1000	0.01	0.01	0
All Categories	5.97	8.58	8.41

Source: Authors' calculations using 1995 Current Population Survey and 1995 Statistics of Income data, "aged" to 1999.

Table 3: Distribution of Non-filers, by AGI Category, 1995

1995 AGI Category (000s)	Number of Nonfiler Families (million)	Total Number of Families (Filer + Nonfiler)	Percent of Families Not Filing
< 0	0.28	1.08	26.28%
0-10	17.56	36.79	47.72
10-20	0.31	24.55	0.13
20-30	0.31	17.77	0.17
30-40	0.05	12.39	0.04
40-50	0	9.06	0
50-75	0	13.61	0
75-100	0	5.34	0
100-200	0	3.99	0
200-500	0	0.97	0
500-1000	0	0.17	0
> 1000	0	0.08	0
All Categories	17.91	125.81	14.23

Source: Authors' tabulations using the 1995 Current Population Survey and the 1995 Statistics of Income datafile.

Table 4: Distribution of Earnings of Married Joint Filers, Filers Under Age 65,1995

Family AGI Category (000s)	Average Earnings of Lower-Earning Spouse/Average Earnings of Couple	
	1995 Treasury W2/1040 File	1995 Survey of Consumer Finances
< 15	8	-2
15-20	12	7
20-30	16	11
30-40	20	20
40-50	23	26
50-60	24	25
60-65	26	27
65-70	27	26
70-75	26	29
75-80	27	25
80-85	27	31
85-90	28	32
90-95	26	30
95-100	25	31
100-110	25	28
110-120	25	31
120-130	22	26
130-140	20	27
140-150	18	25
150-200	16	21
200-250	13	13
250-300	10	10
300-350	9	10
350-400	9	10
400-500	8	9
500-600	7	5
600-750	7	5
750-1000	7	4
1000-2000	6	3
> 2000	5	7

Source: Tabulations from the Treasury Masterfile and 1995 Survey of Consumer Finances.