

**The Intra-Household Allocation of Assets:
Evidence from the Separate Taxation of Spouses in the UK**

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Comments welcome

Abstract

The income tax system in the United Kingdom moved from joint to independent taxation of husbands' and wives' income in 1990. This change will have changed the optimal pattern of ownership of assets within households. Because wives typically have lower earnings than their husbands and therefore face a lower marginal tax rate after the policy change, we would expect couples to allocate assets, and thus income from them, in a way that minimizes the tax liability on this income. We use Family Expenditure Survey data to test whether there was a shift of asset income from husbands with higher marginal rates to wives with lower marginal rates coincident with the shift to independent taxation. We find a sizeable shift in the share and incidence of asset income claimed by wives, as well as in the incidence of the wife claiming all the household asset income, showing that households did respond to this policy change by reallocating asset ownership.

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I. Introduction

The United Kingdom began taxing the incomes of husbands and wives independently in April 1990. Prior to this date all household income was pooled for the purpose of taxation. The switch to independent taxation meant that each spouse would be taxed on their own income, both earned and unearned. As with any other tax reform that alters the marginal tax rate faced by individuals, this reform should affect real behavioral outcomes that are traditionally examined by economists such as labor supply. However, it may also affect other outcomes. A particularly intriguing and unique aspect of independent taxation in the UK is the potential for intra-household tax arbitrage with respect to unearned income. Under the new tax system, each spouse is taxed separately on his or her share of the household investment income. Households therefore have an incentive to re-allocate shares of investment income towards the spouse with the lower marginal tax rate in order to reduce the overall tax burden faced by the household.

In this paper we examine the impact of independent taxation on the allocation of investment income within households. The aim of this research is twofold. First, we hope to understand the extent to which the tax reform prompted households to shift investment income between spouses to reduce the total tax burden. Because households may not allocate their investment income based purely on tax arbitrage incentives, our second aim is to examine the factors that may mitigate the incentives to re-allocate investment income between spouses.

Using the UK *Family Expenditure Survey* data, we examine the impact of the aforementioned tax reforms on the intra-household allocation of asset income. The identification strategy we employ is to compare household outcomes in groups that faced larger versus nil or smaller differences in spousal marginal tax rates applicable to asset income.

We use both simple difference-in-difference methods as well as regression techniques to estimate asset income allocation responses. We find a significant reallocation of household

investment income among households with incentives to shift. Not only do we find a modest increase in the proportion of wives having any asset income among the most affected groups, but we also find a significant increase in the fraction of household investment income held by wives, and an increase in the fraction of households in which the wife holds all of the asset income.

This work contributes to the existing literature on tax avoidance. Slemrod and Yitzhaki (2000) assert that too little attention has been paid to responses to tax structure changes which do not involve real changes in consumption or labor supply (see also Slemrod 1995). Shifting of income between spouses in order to minimize the tax bill is arguably one such response. This shifting does not generate new income, but may reduce tax revenue markedly. Gordon and Slemrod (1998) show that there has been significant shifting of income between corporate and personal tax bases in the U.S. in order to minimize taxes on income as relative tax rates have changed between these two bases over time. Shifting income within the family is arguably much easier than shifting income between corporation and individual. Thus, we might expect even stronger responses in the case explored in this paper.

This work has important policy implications which are both timely and relevant in the U.S. context. Recent debates on tax reform in the U.S. have included flat tax proposals and proposals to eliminate the so-called marriage penalty. Moving to an individual-based income tax, like that in the UK, is one possibility in both categories. An obvious question in making such a move is how income from assets owned within a married couple should be treated for tax purposes. Allowing shifting of asset income between spouses under independent taxation could significantly reduce tax revenues. Currently, such shifting occurs in the U.S. between generations – parents or grandparents may shift assets inter vivos to a younger generation in order to avoid estate taxes or to minimize the current tax bill on income from those assets.

However, the amount of such transfers which can be made without inheritance taxes is restricted, while there are few or no restrictions on transfer of assets between spouses.

The paper is organized as follows: The next section discusses the UK tax reforms in more detail. We then briefly discuss the data used for this study as well as the identification strategy we employ. We then present our empirical results, using simple difference-in-difference methods as well as regression analysis. The final section concludes and suggests directions for further research.

II. The Tax Law Reforms

Prior to April 1990, the UK income tax system was a joint system based on the family.¹ Spousal income was pooled for purposes of calculating the family tax bill. In fact, all family income was considered to be the husband's income. Married men received a Married Man's Allowance (MMA, a tax exemption) which was larger than the Single Person's Allowance (SPA). Families with working wives received a Wife's Earned Income Allowance (WEIA), equal to the SPA, which could be applied to her labor income, but not to her unearned income or to any other household income. Any labor earnings of the wife that exceed the WEIA was taxed jointly with other household income. Any of the WEIA not used to set against the wife's earnings was forfeited. In contrast, if the husband's taxable earnings and household unearned income were not large enough to use all of the MMA, the remainder of this allowance could be transferred to the wife and set against her labor earnings.²

¹ The tax year begins April 6 and ends April 5.

² Couples could opt to be taxed separately as single persons, except that all unearned income still had to be claimed by the husband. This option, called the "wife's earnings election" resulted in the husband only being eligible for the SPA rather than the larger MMA. Therefore, the wife's earnings election only benefited very high-income dual-earner couples.

In the late 1980s and early 1990s, two substantial changes were made to the income tax system. In April 1988, the marginal tax rate structure was substantially compressed, reducing the marginal rate for households at the top of the income distribution. The four highest tax rate bands (45, 50, 55, and 60%) were eliminated, leaving only two rates: a basic rate of 25% and a higher rate of 40%.³ Table 1 shows tax rates for tax years 1987 through 1993.

Beginning on April 6, 1990, husbands' and wives' incomes were taxed separately and independently, each receiving their own personal allowance which could be set against earned and unearned income, with the exception of interest income. Prior to April 6, 1991 individuals with incomes less than their personal allowance were taxed on interest income, affecting an estimated 5 million married women. Beginning April 1991, interest income could be set against the personal allowance.

In the new system, each spouse was eligible for the entire SPA, now renamed the Personal Allowance (PA). However, since the MMA had exceeded the SPA, its elimination would reduce the amount of household income that was exempt from taxation, penalizing some couples. To offset this effect, a Married Couple's Allowance (MCA) was introduced, which was initially equal to the difference between the SPA and the old MMA. Like the old MMA, the MCA was initially set against the husband's income, and any portion unused by him was transferred to the wife. Beginning in 1993, half or all of the married couple's allowance could be transferred to the wife, even if the husband had sufficient income to use all of it. The MCA gradually decreased in real value over the 1990s, due both to erosion from inflation and to a phase-out through limits on the maximum benefit from the allowance. The MCA was finally eliminated for the tax year beginning in April 2000.

³ A lower rate of 20% was introduced in April 1992, applicable to the first 2000 pounds earned beyond the allowance.

The switch to independent taxation allows couples to reallocate ownership and therefore unearned income from assets to either spouse. In the case of jointly owned assets, they may divide shares of ownership and therefore the income in any way they choose. Prior to 1990, all asset income was allocated to the husband for purposes of calculating the couple's tax bill, even if they opted to file separately. This change created an incentive to transfer asset income to the wife in many households since she often faces a lower marginal rate than her husband due to her lower earnings. Furthermore, if the wife worked very little or not at all, then some or perhaps all of the asset income shifted to her would not be taxed at all.

III. Data

The *Family Expenditure Survey* is an annual survey of UK households, providing cross-section time-series data that are consistently collected across several decades.⁴ The survey is conducted primarily for the purpose of constructing weights for the Retail Price Index, but the data are also intended to be useful for research. A random sample of ten thousand households is selected each year, approximately seventy percent of which complete the survey. One or more face-to-face interviews are conducted with one or more members of each household. Information collected includes household and personal expenditures, household demographics, and individual labor supply along with income and its sources.

The survey is ongoing throughout the year, and the month (or in some earlier years, the week) of the initial interview is reported. We are therefore able to construct data samples based on the tax year, which does not coincide with the calendar year. The data were collected on a calendar year basis through calendar year 1993, at which time it began being collected on a tax

⁴ The data are collected by the Office of Population Censuses and Surveys Social Survey Division for the Department of Employment and the Central Statistical Office. The data are maintained by the Economic and Social Research Council Data Archive at the University of Essex, <http://dawwww.essex.ac.uk/>.

year basis. The data also include the region in which the household is located. There are a total of twelve regions, including Northern Ireland, Scotland, Wales, Greater London, and eight additional regions in England.

We use data from households interviewed between April 1987 and March 1990 inclusive (three tax years) to represent the period before the switch to independent taxation. Households interviewed between April 1991 and March 1994 inclusive represent the post-reform period. We omit tax year 1990, which is somewhat of a transition period. Recall that the personal allowance cannot be set against interest income in this year, so that the incentive to transfer interest bearing assets is considerably smaller than is the case beginning in April 1991. We further limit the sample to households with a married couple where both husband and wife are at least 20 and not more than 60 years of age. We use the monthly Retail Price Index, obtained from the Office for National Statistics, to construct an annual price index for each tax year and convert all monetary values in the data to a constant currency: 1993-94 tax year £.

IV. Conceptual Framework and Estimation Strategy

The switch to independent taxation will have created an incentive for many households to transfer assets and therefore asset income to the spouse with the lower marginal rate, typically the wife. We examine proportions of households with the wife having some investment income, and well as the share of the household asset income held by wives, before versus after this switch. We also examine the fraction of households with asset income where the husband holds any of that income in the two periods. This inversely tells us about the fraction of households where the wife holds all of the asset income. We examine these outcomes in simple change over time and difference-in-difference forms, in regression models which control for some demographic variables, and in longer time-series plots.

Note that the switch to independent taxation will have had differential effects for couples in different tax bracket configurations. Couples in which the husband and wife face the same marginal tax rate on asset income, have no incentive to shift asset ownership. Couples where these marginal rates are very different between spouses have the largest incentive to shift assets. In order to make comparisons over a time period with a changing tax rate structure, we need to categorize households into comparable groups. We calculate each spouse's total income less investment income. This includes earnings as well as any taxable government benefits or other unearned income not from assets. Based on this income calculation, we determine the marginal tax rate on the first pound of investment income for each spouse for households surveyed in the post-reform period. For households surveyed in the pre-reform period, we apply the tax rate structure for tax year 1991-92 to them and make the same calculations. By using the first pound marginal rate, we avoid the difficult issue of the endogeneity of the marginal tax rate with respect to asset income. Given our estimation approach, simply using the first pound marginal rate as a proxy rather than as an instrument will suffice.

There were no pre-reform tax incentives to allocate assets within the family in any particular way. Thus, pre-reform households represent a baseline to which post-reform households can be compared. Our assignment of tax rates simply allows us to group together couples with similar income patterns across husbands and wives. In assigning tax rates in this way, we are making an important simplifying assumption – that labor and other (non-investment) income is exogenous to tax system changes over the period. We believe this assumption is not as strong as it may at first seem, and we will discuss it further in the next section.

Using the marginal tax rates we've assigned, we group households into three groups: those where the husband and wife face the same rate, those where his rate is higher, and those where her rate is higher. As you might imagine, the latter group is relatively quite small. We

compare the allocation of assets using both shares and incidence measures for these groups in the before versus after periods using plots and simple mean change and difference-in-difference measures. It is possible that the groups we construct change over time in dissimilar ways along dimensions that may influence how the groups respond to tax reforms. For example, groups may have dissimilar trends in educational attainment, number of children, etc. If so, then a simple mean change or difference-in-difference estimate may be biased, as it may also include effects of some change in within group composition. To address this possibility we use a multivariate regression version of the mean change and difference-in-difference techniques to control for demographic characteristics that may be important in determining behavior.

Assuming there are fixed transaction costs to transferring assets, we would expect those with more to gain from doing so to be more likely than others to make the effort.⁵ Therefore, couples with a large difference in the spouses' marginal rates should be more likely to shift assets. To address this, we further subdivide the three groups in order to compare couples with larger versus smaller rate differences in the simple mean change and difference-in-difference analysis. In regressions, this is addressed by introducing interaction terms which are the product of the post-reform period dummy variable with the absolute difference in the tax rates. There is one such term for couples where the husband's rate is higher (set to zero for others) and one for those where the wife's rate is higher (set to zero for others). Both terms are by definition zero for couples where spouses face the same marginal rate. Having separate terms for these different types of couples allows for their responses to the policy change to differ.

Transactions costs may not be the only reason to resist transferring assets. One other possibility is that a pound of assets or income owned by the wife is not equivalent to a pound of assets or income owned by the husband. This may be the case due to household bargaining or

strategic behavior on the part of spouses. If who controls income in the household influences the basket of goods household resources are allocated to, then husbands may resist transferring assets in order to maintain a higher level of control over consumption decisions. While this motivation for not shifting assets cannot be directly tested against alternatives in this case, we argue that the cost of transferring assets in this story is not a one-time fixed cost. Therefore, the resistance to shifting is not likely to erode with larger rate differences as should be the case for transactions costs.

There may also be incentives to allocate assets in a particular way for estate planning, but these arguments would typically suggest transferring assets to wives, who are likely to outlive their husbands, so are unlikely to induce resistance to such transfers. One final possibility is that information is costly and that those with higher assets are more likely to be well informed about tax rules and ways to minimize the family tax bill.

V. Results

Figure 1 (a) shows the fraction of households in our sample which have some investment income, and the fraction of households in which the wife reports some such income. This and subsequent plots use data from a longer time series than that included in our more formal analyses so that one can see longer-term trends. Here, neither series appears to have shifted in 1990 or 1991. There did not appear to be significant new entry into holding assets by households in response to this policy shift.⁶ Panel (b) shows the fraction of households having some investment income by tax rate difference groups. The two groups shown are households where the spouses' marginal tax rates are equal and those where the husband's rate is higher. We have

⁵ In order to make a declaration of asset transfer for income tax purposes, including declaring some division of joint ownership other than 50/50, Form 17 must be completed and signed by both spouses and filed with Inland Revenue.

⁶ We will further investigate in the next draft whether the real value of the households' investments increased.

omitted the group in which the wife's rate is higher, as we will do in subsequent plots by group. This is due to the small size of that group and the resulting sampling variability. Adding the group does not add any information, but obscures patterns one might see for the other two groups. This third group will be included in mean change, difference-in-difference, and regression analyses. Figure 2 includes four panels showing patterns of change in the incidence of wives holding investment income and in her share of household investment income. In panel (a), showing only households with investment income, there is an increase in the share the wife holds coincident with the shift to independent taxation, most apparently beginning in 1991 as we would expect. We do not have a good explanation for the downturn in her share in 1994. Collection of data changed to a tax-year basis with 1994 being the first full year of the new scheme. We plan to investigate the possibility that there may have been changes in data collection that could affect this series, as well as search for other explanations. Formal analyses to be discussed shortly do not include 1994 and subsequent years.

In panel (b), which includes households with no investments, note the convergence in the two series in 1991. Wives in households with equal marginal tax rates had a higher share of investment income than those where the husband's rate is higher before the policy shift, but the two series are indistinguishable in the post-reform period. Recall that his higher rate did not produce any incentive for shifting before the tax reform. The pre-reform picture represents a baseline for comparison in a state of the world where there is no incentive for any particular distribution of asset income. With the inception of independent taxation, households where the husband had a higher rate had incentive to shift, whereas the other group did not. A similar but clearer pattern appears in both panels (c) and (d), which show the incidence and share respectively of asset income holding by wives among households with investment income. In Figure 3, we examine the other extreme – the fraction of households where the husband holds

some investment income. Of particular interest is panel (b), which limits the sample to households with investment income. Noting that the residual is households where the wife holds all of the investment income, we see that the fraction of these households increased markedly post-reform among couples for which we would make that prediction – those where the husband has a higher marginal tax rate.

Frequency distributions of the wife's share of household investment income in Figure 4 provide more detail about how this share shifted in response to the tax reform. All three panels have large spikes at 50%. This is not surprising, as a common default assumption for jointly owned assets is that they are owned equally. In the pre-reform period, there was no reason for spouses to specify some other division of jointly-owned assets. Panel (a) shows no obvious change in the distribution among couples where spouses face the same marginal rate. Panel (b) shows shifts away from shares of zero and fifty percent and toward one hundred percent in couples where the husband's rate is higher, as we would expect. Panel (c), showing couples where the wife's rate is higher, do not shift in ways that are reversed from those in panel (b). There are shifts away from both endpoints toward more equal ownership. This suggests that we should allow for the groups in panels (b) and (c) to respond differently in formal analyses. Note that these frequency distributions are based on all households. We would expect that the pattern of shifts, particularly in panel (b), would be even more apparent if we limited the sample to households with investment income.

Table 2 shows simple mean difference and difference-in-difference estimates of the effect of the tax reform for the fraction of wives holding investment income and the share of household investment income held by wives. The sample is restricted to those couples with investment income. We see, in the difference columns that neither outcome generally changes over the two periods. The marginally significant result where both spouses face a 40% rate is based on only

49 households, so is not compelling. However, among group 2 – those where the husband’s rate is higher – we see an increase in both measures after the reform, which is statistically significant in all but one case. The difference-in-difference estimate, comparing changes in this group to those in the first group, is positive and statistically significant for both measures, indicating that asset income was significantly more likely to be shifted to wives in group 2 than in group 1. In group 3 – those where the wife faces a higher tax rate than her husband, differences and the difference-in-difference estimate are generally negative, as we would expect (with the exception of 40%-0% couples), but none of these effects are statistically significant.

Table 3 shows simple difference and difference-in-difference estimates of the fraction of husbands holding some investment income among households with investment income. This fraction is not changing significantly among couples with equal rates, but is generally declining significantly among couples where the husband’s rate is higher, as we would expect. The difference-in-difference estimate for this group relative to that with equal rates is also negative and significant. Among couples where the wife has the higher tax rate, there are some marginally significant increases, which are consistent with our hypothesis. However, the difference-in-difference estimate for this group overall (versus group 1) is not significantly different from zero. Recall that one minus the fraction of husbands holding investment income is the fraction of wives holding all of the household’s investment income. Thus, the negative effects found for group 2 in this table imply an increase in the fraction of households where the wife holds all of the investment income. These households are achieving perfect arbitrage.

Tables 4 and 5 show similar results to those discussed above, but using multivariate regression, which allows us to control for demographic variables which may influence

households' asset allocation, and which may conceivably differ within a group over time.⁷ We estimate the equations both with and without these controls in order to ascertain robustness of the tax-reform estimates. These specifications use several binary variables to allow for different levels of each outcome variable for different groups, and uses interaction terms to test for differences in responses across groups. This strategy is the regression equivalent of the difference-in-difference technique. The change variables we are particularly interested in are shown in boldface. We estimate three different outcome variables – whether the wife or the husband holds any investment income (linear probability models) and the share of investment income held by the wife (OLS).

In Table 4 we run regression models for each outcome using a variety of specifications. Due to the fact that the policy change is expected to shift assets towards wives in some households and away from wives in other households, we cannot use a simple binary variable to capture differences between households that are induced to change their behavior by the policy change and those that are not. Therefore, the variable “Marginal Rate Differs” in Table 4 is a trichotomous variable. This variable equals 0 in households where the spouses' marginal rates are equal and equals 1 in households where the husband's marginal rate exceeds the wife's. In households in which the wife's marginal rate exceeds the husband's, however, the impact of separate taxation should be the opposite of those households in which the husband's marginal rate is higher. In order to use all three sets of households in the same baseline regression, we set the “Marginal Rate Differs” equal to -1 for households in which the wife's marginal rate exceeds the husband's.

⁷ The regressions with demographic controls include a quadratic in the wife's age; number of children; number of children under 5; the wife's and husband's years of education; year effects for 1988, 1989, 1992, and 1993; and regional dummies for Greater London, Wales, Scotland, and Ireland.

In the first two columns for each outcome in Table 4, we run a naïve model which is meant to replicate the difference-in-difference results in Table 2. The coefficient of interest in these columns is the interaction between the marginal rate differs variable and the post-reform period. We find right-signed and statistically significant results in both the basic difference-in-difference regressions and when we include demographic characteristics. The coefficient on this interaction is statistically significant in all but one column (column 2) where it is marginally significant. These results are consistent with the hypothesis that households shift assets to the spouse with the lower marginal rate.

However, Table 2 indicated that the significant results are found only in households in which the husband's marginal rate is higher. We replicate those results in third and fourth columns of results for each outcome in Table 4. Here, we create two dummy variables: the first takes the value of 1 if the husband's rate is higher and zero otherwise, and the second takes the value of -1 if the wife's rate is higher and zero otherwise. These are then interacted with the post-reform dummy. The impact of separate taxation for households in which the husband's rate exceeds the wife's is statistically significant across all three outcomes and are robust to the inclusion of demographic controls. The results for households where the wife's rate exceeds the husband's are generally right-signed (except for the first outcome) but insignificant.

In Table 5, we find results with similar implications. The specification here addresses our hypothesis regarding fixed transaction costs of transferring assets. Rather than using a dummy variable to indicate whether tax rates are different, we use the difference in the rates interacted with the post-reform dummy to test for effects of the policy change. The first specification (in the first two columns for each outcome) uses the husband's less the wife's tax rate, interacted with the post-reform dummy. Our hypotheses are that the effects of this variable should be positive for the wife's outcome variables and negative for whether the husband holds

investment income. The hypotheses are borne out, and we can reject the null in all cases but one. The second two columns for each outcome variable is a more general specification. Here, we use two separate interactions to examine the impact of separate taxation. The first interaction is the husband's rate minus the wife's rate difference for couples where the husband's rate is higher and is zero for all other households. The second interaction is also the husband's rate minus the wife's rate, but it is only non-zero for households in which the wife's rate exceeds the husband's. As in Table 4, we see that none of the results for this latter group are statistically different from zero although it is right-signed in all specifications. We can, however, reject the null for the group in which the husband's rate is higher in all cases but one. In this group, we find that the probability of the wife having some investment income and her share of household investment income are positively affected by the tax reform and that the probability of the husband having some investment income is negatively affected. These results also imply that the greater the rate difference, the greater the magnitude of the effect. This means that couples with larger difference in rates are more likely to shift asset income. This is consistent with our conjecture that, in the presence of fixed costs of transferring assets, those with a higher potential payoff will make the transfer.

One might question the validity of these results given that we have assumed labor supply to be exogenous to the tax reforms over this period. In other work, we find preliminary evidence of no change in the labor supply of wives in the high-income households where women's incentives to work were most affected by tax reforms in the late 1980s and early 1990s. Our own estimates, as well as our simulations using structural parameters estimated by Blundell, Duncan, and Meghir (1998) are consistent with zero net change in labor supply among those women over the period we examine here. One likely reason we do not find an effect is that in the absence of substantial fixed costs of working, the tax reforms only affected incentives for

women who were previously employed. There was no change in the incentive to participate. The participation margin is widely accepted as the margin where most of the action is in terms of married women's labor supply responses to effective marginal wages. Another reason is that the tax changes also created a substantial income effect by reducing the tax burden on non-wife household income and therefore offset the reduction in marginal tax rates. This income effect is driven in large part by elimination of top rates in 1988, and only partly by the switch to independent taxation. Since we don't see changes in asset income allocation until 1991, it is unlikely that indirect changes through labor supply effects are driving our results. It is conceivable that men's labor supply may have responded to these changes, and we have some preliminary estimates which suggest their earnings may have increased. However, again, the largest change in their labor supply incentives came with the 1988 change and we don't see any shifts in allocation with that change in time series plots.

VI. Conclusion and Discussion

We present compelling evidence that married couples in the UK shifted assets and asset income toward wives in response to the inception of independent taxation. This adds to the small but important recent literature on tax avoidance. These behavioral responses do not generate new income or necessarily affect the household's consumption basket.

This work also has important implications for some recently proposed tax reforms in the U.S. Allowing shifting of asset income between spouses may have large detrimental effects on tax revenue in a system if individual- rather than family-based income taxation.

Additional work planned includes calculating how much sub-optimal asset allocations are costing households in various income strata. We will also examine whether the real amount and not just incidence of holding assets increased among households in response to these reforms.

Directions for further research include examining the timing of capital gains realization in response to this tax reform. Capital gains income is taxed separately from other asset income in the UK, but the reforms in capital gains tax rules is similar to the changes examined here, and provide equally compelling incentives, both to shift assets within families, and to adjust timing of gains realization. Unfortunately, the data used here cannot be used to examine this question. We are exploring other data for this purpose.

Bibliography

- Alm, James, Dickert-Conlin, Stacy, and Leslie A. Whittington. "Policy Watch: The Marriage Penalty." *Journal of Economic Perspectives*. 1999; 13(3): 193-204.
- Blundell, Richard; Duncan, Alan, and Meghir, Costas. Estimating labor supply responses using tax reforms. *Econometrica*. 1998 Jul; 44(4):827-861.
- Department of Health and Social Security. *Social Security Statistics*, London: H.M.S.O.; 1984.
- Fabian Society. *Reform of Direct Taxation: Report of the Fabian Taxation Review Committee*. London: Fabian Society; 1990.
- Feldstein, Martin. "Tax Avoidance and the Deadweight Loss of the Income Tax." *The Review of Economics and Statistics* 81(4): 674-680, 1999.
- Gordon, Roger and Joel Slemrod. "Are 'Real' Responses to Taxes Simply Income Shifting Between Corporate and Personal Tax Bases?" NBER Working Paper 6576, 1998.
- Hancock, Dora. *An Introduction to Taxation*. London: Chapman & Hall; 1994.
- H.M. Treasury. *Tax Benefit Reference Manual*, 1995/96 edition. London: H.M.S.O.; 1995.
- Inland Revenue. "Tax rates and allowances 1992/93 to 1999/00."
<http://www.inlandrevenue.gov.uk/rates/itrates1.htm>. London: Inland Revenue; 1999.
- Kay, J. A. and King, M. A. *The British Tax System*, 5th ed. Oxford: Oxford University Press; 1990.
- Sinclair, W. I. *Allied Dunbar tax guide 1991-92*. London: Longman Group UK Limited; 1991.
- Sinclair, W. I. *Allied Dunbar tax guide 1992-93*. London: Longman Group UK Limited; 1992.
- Sinclair, W. I. *Allied Dunbar tax guide 1987-88*. London: Longman Group UK Limited; 1987.
- Slemrod, Joel. "High-Income Families and the Tax Changes of the 1980s: The Anatomy of Behavioral Response." NBER Working Paper 5218, 1995.
- Slemrod, Joel and Shlomo Yitzhaki . "Tax Avoidance, Evasion, and Administration." NBER Working Paper 7473, 2000.
- Steinmo, Sven. *Taxation and Democracy: Swedish, British and American Approaches to Financing the Modern State*. London: Longman Group UK Limited; 1987.

Figure 1 (a) % of Households with Investment Income and % Where Wife Has Investment Income

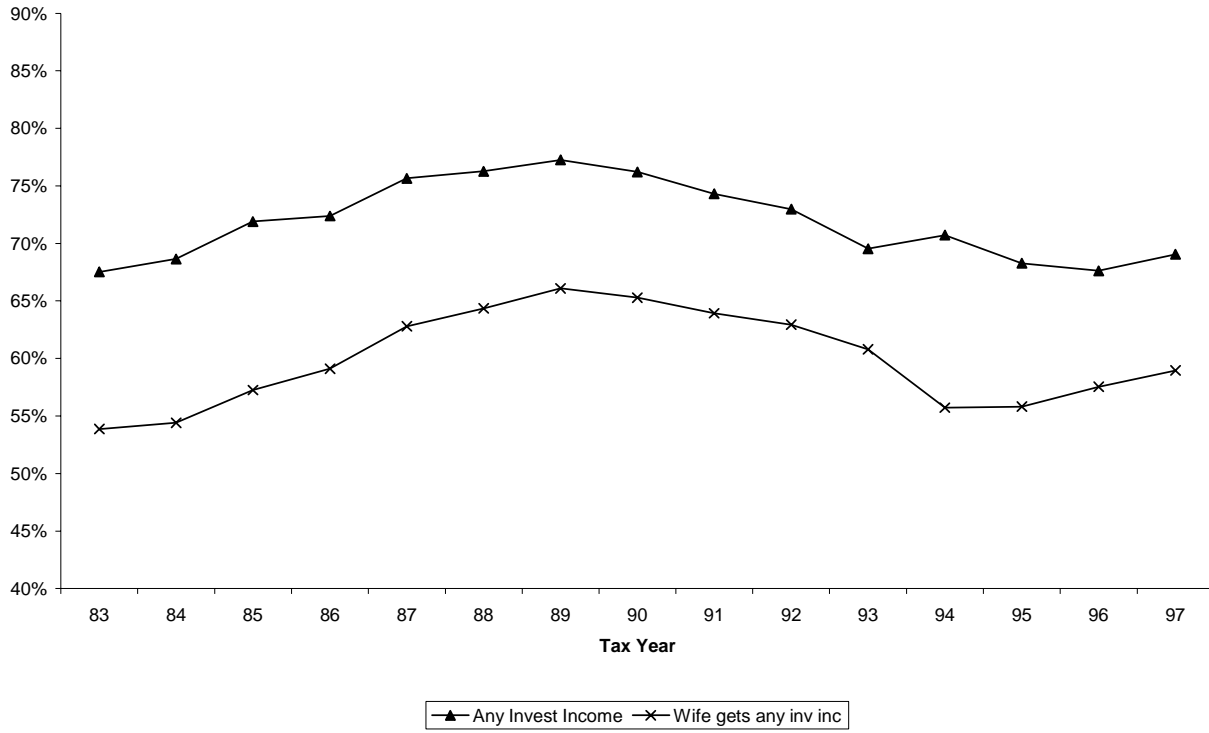


Figure 1 (b) % of Households with Investment Income by Tax Rate Difference Group

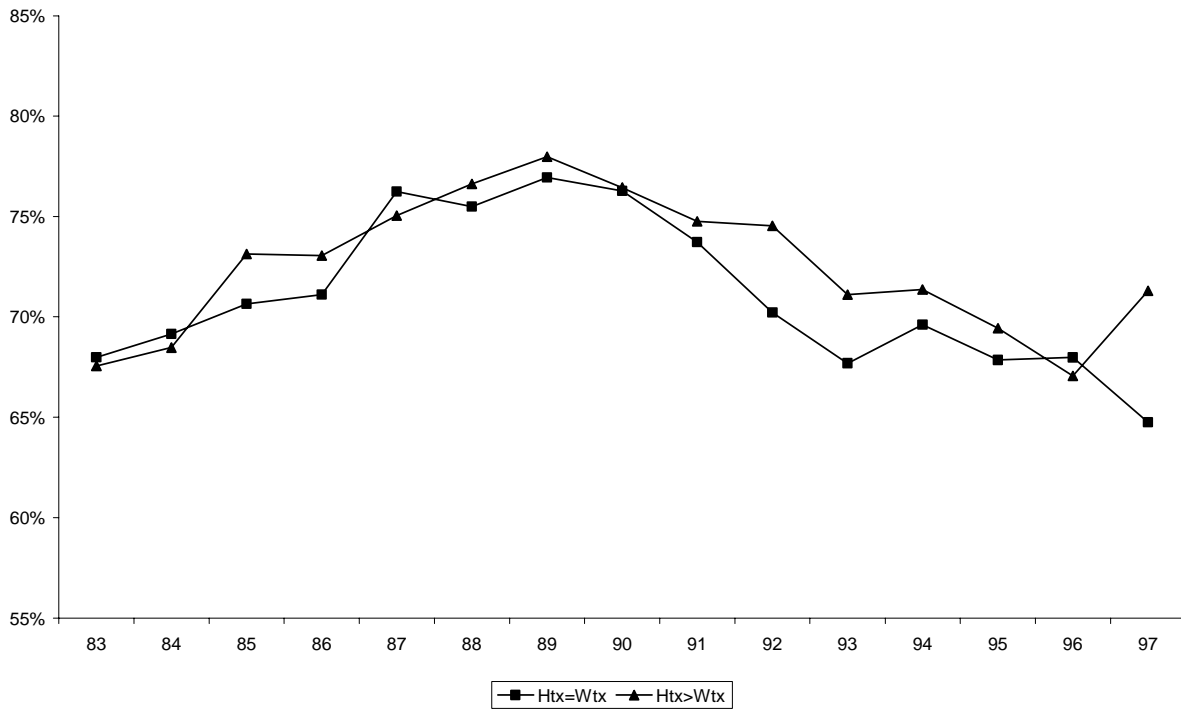


Figure 2 (a) Wife's Share of Investment Income & % of HHs where Her Share >0 among HHs with Investment Income

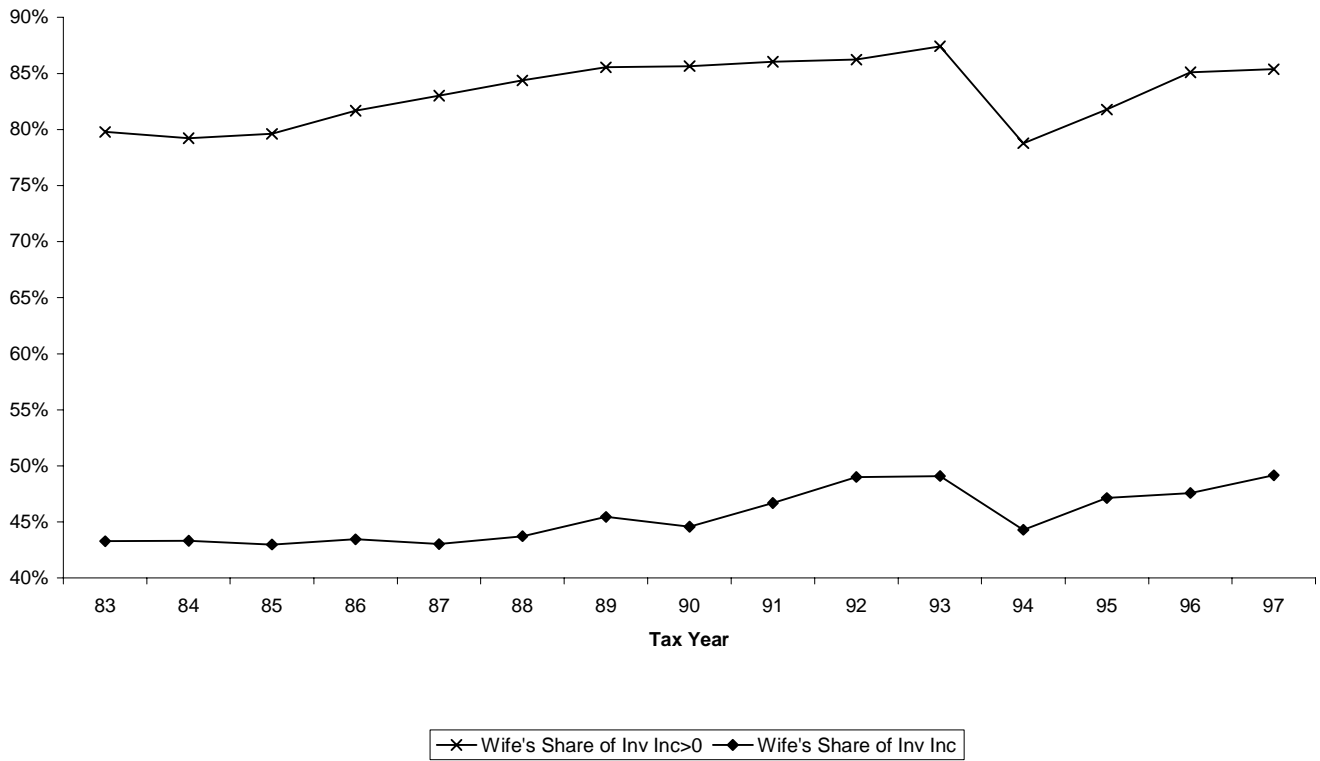
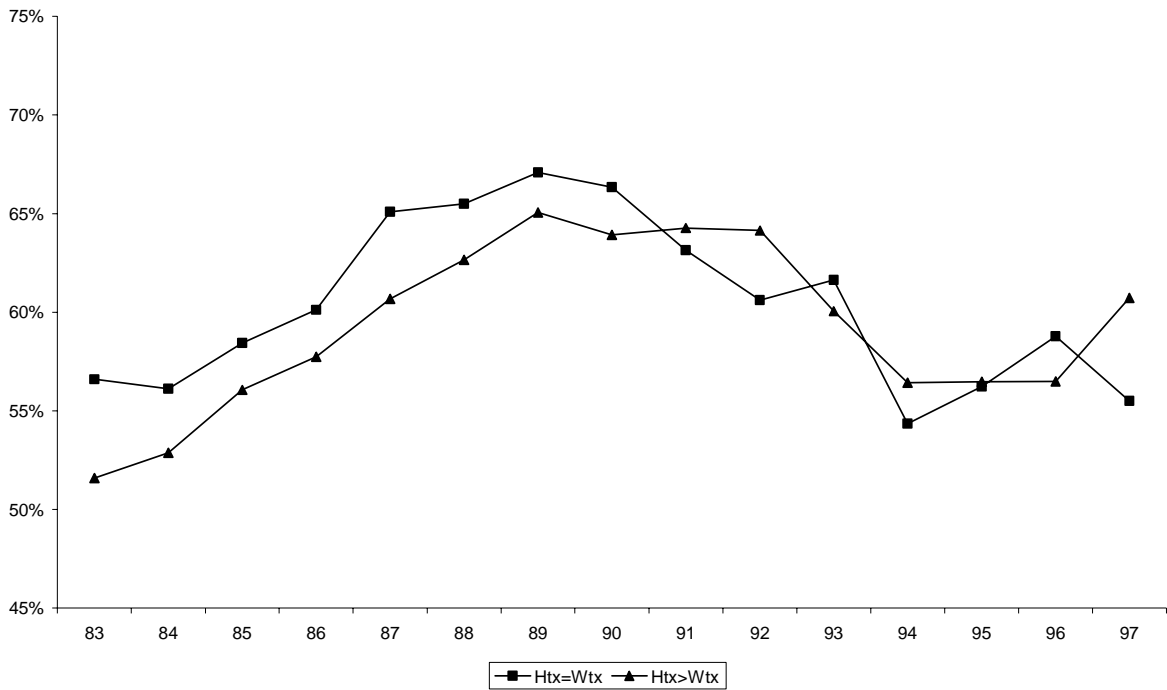
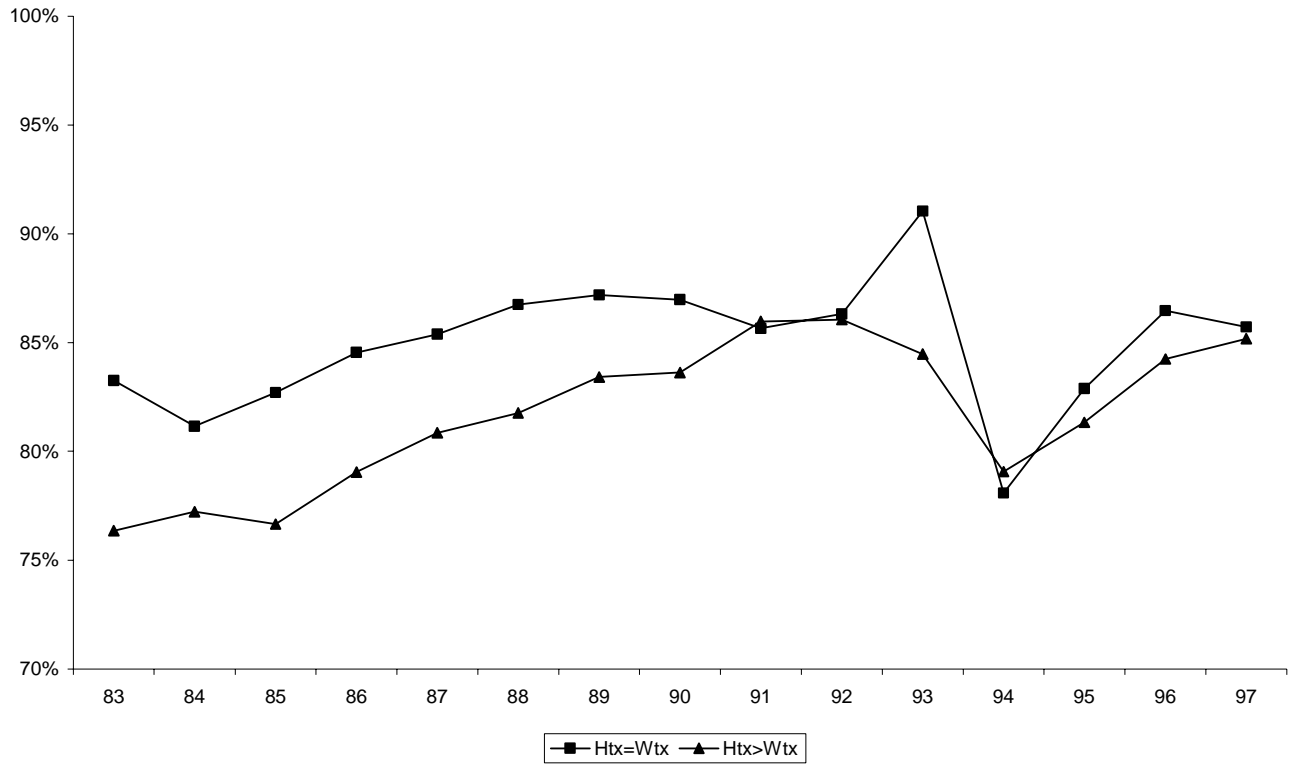


Figure 2 (b) Fraction of Wives with Investment Income by Tax Rate Difference Group



**Figure 2 (c) Fraction of Wives with Investment Income
among Households with Investment Inc by Tax Rate Difference Group**



**Figure 2 (d) Wives' Fraction of Investment Inc
among Households with Investment Inc by Tax Rate Difference Group**

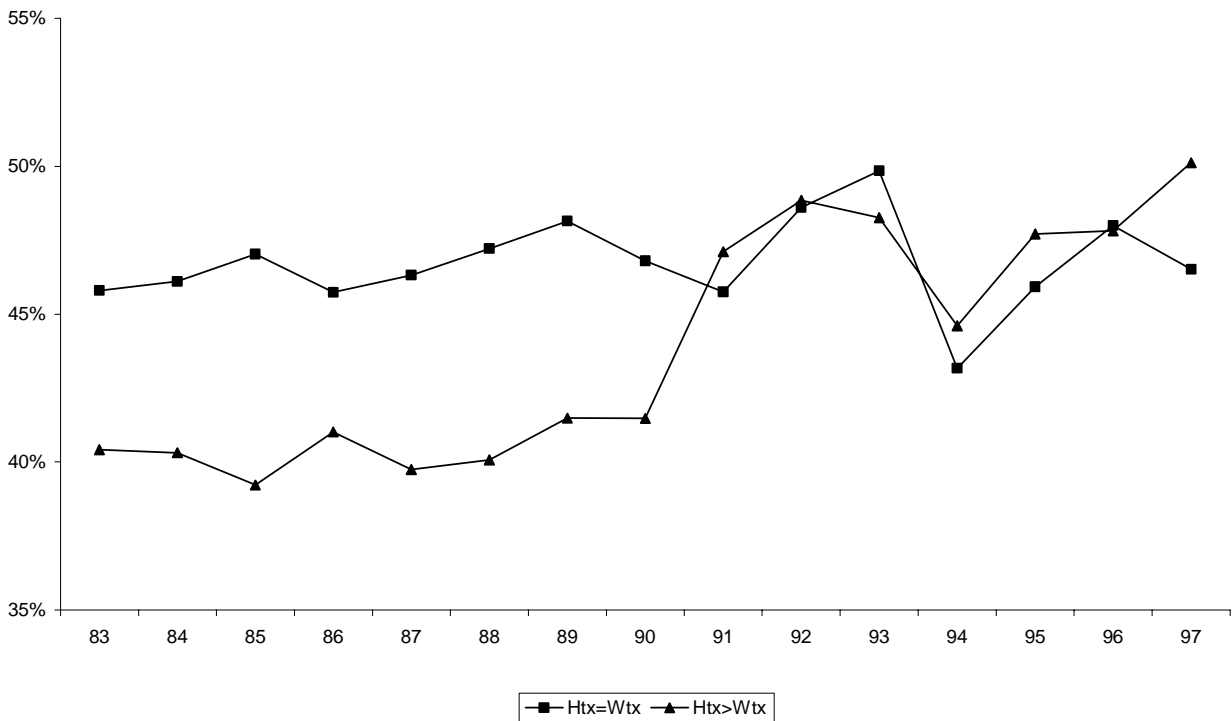


Figure 3 (a) Fraction of Husbands with Invest Income by Tax Rate Difference Group

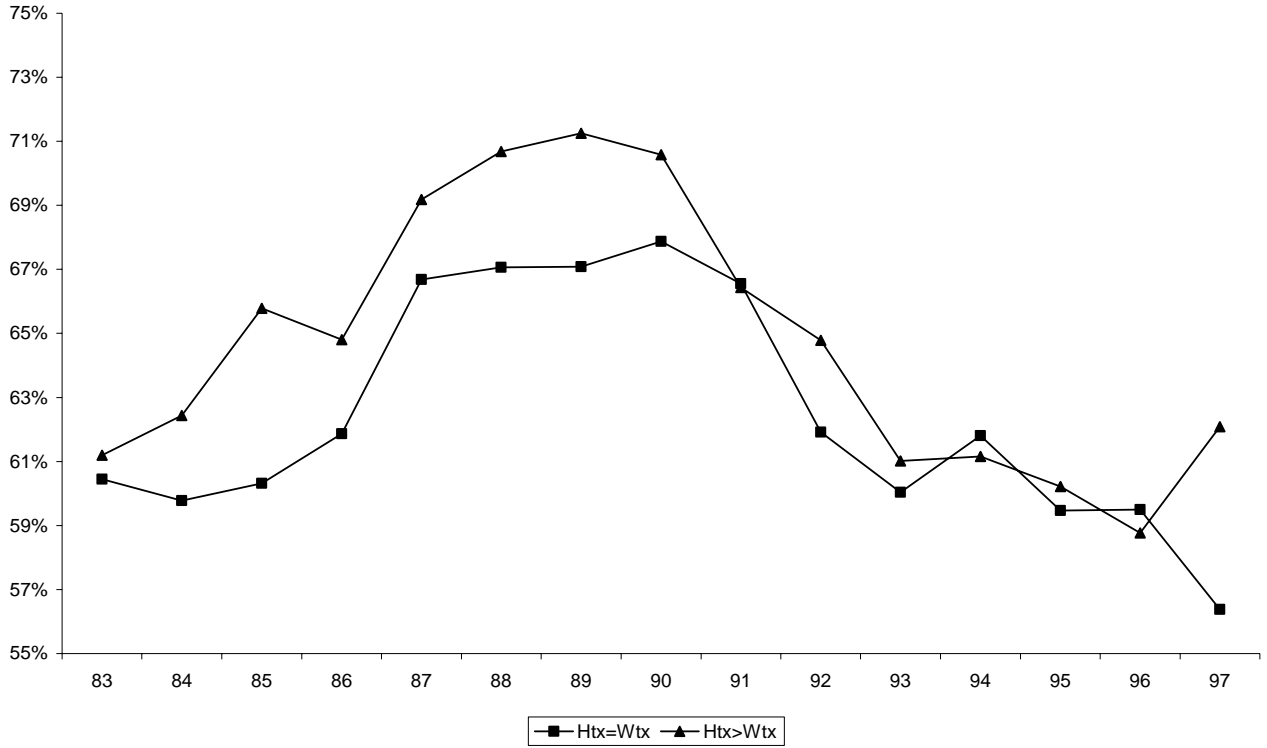


Figure 3 (b) Fraction of Husbands with Invest Income among Households with Investment Inc by Tax Rate Difference Group

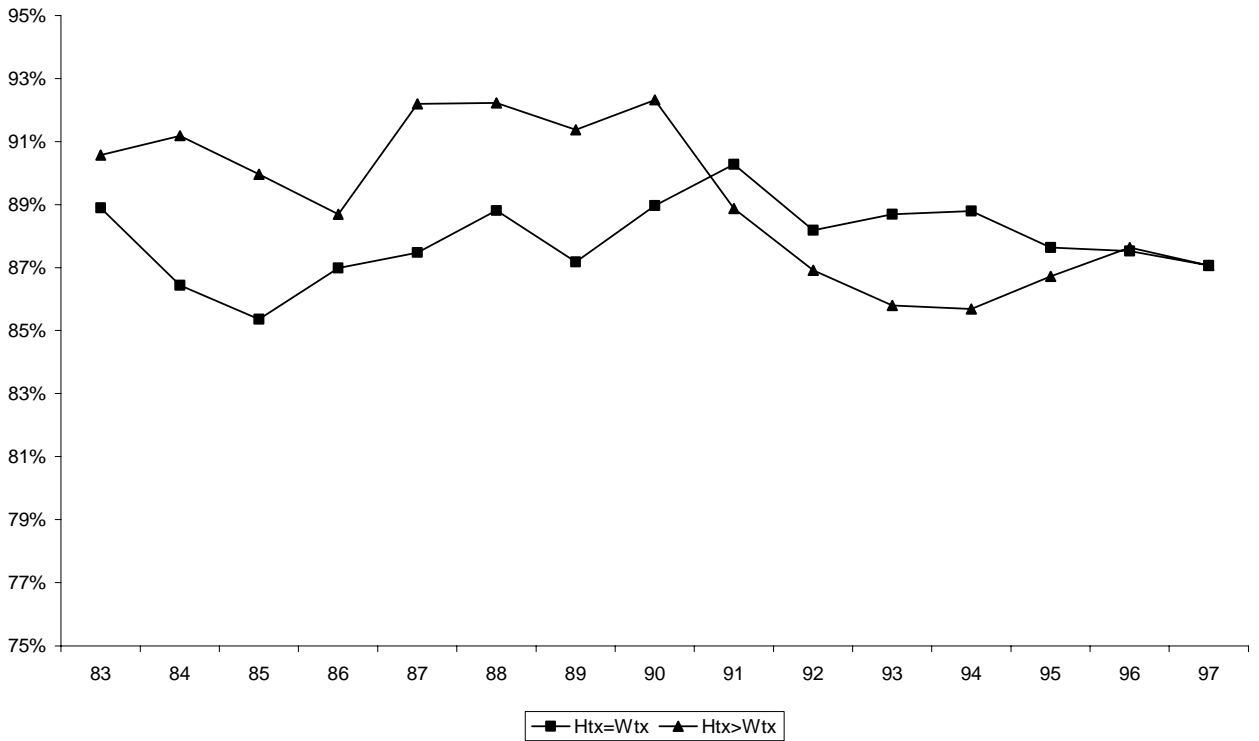
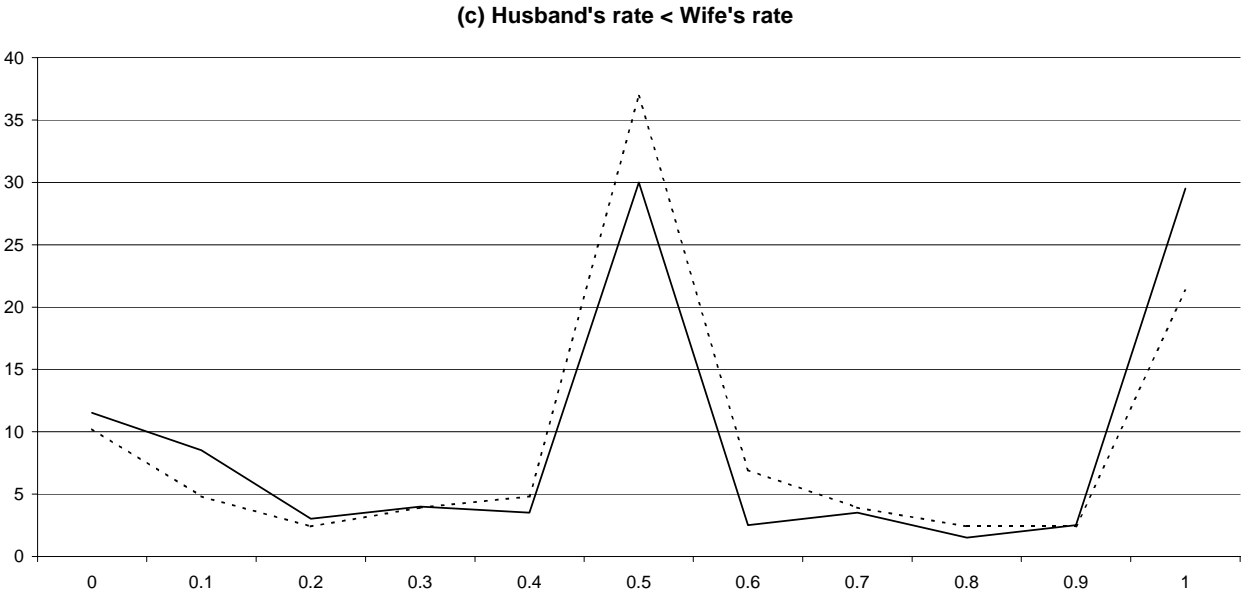
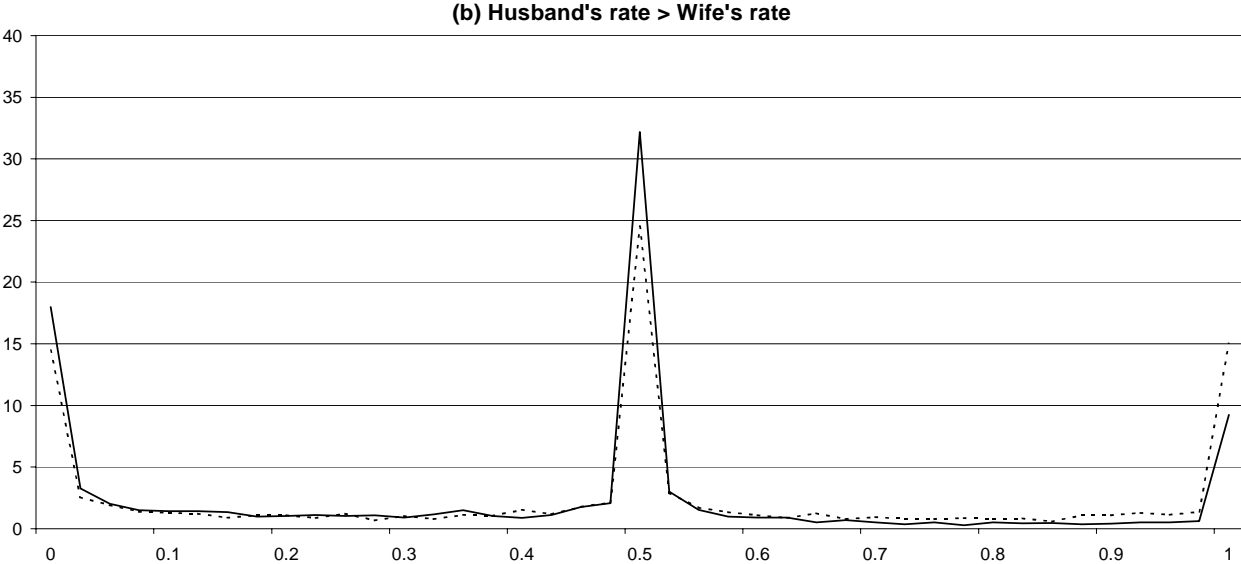
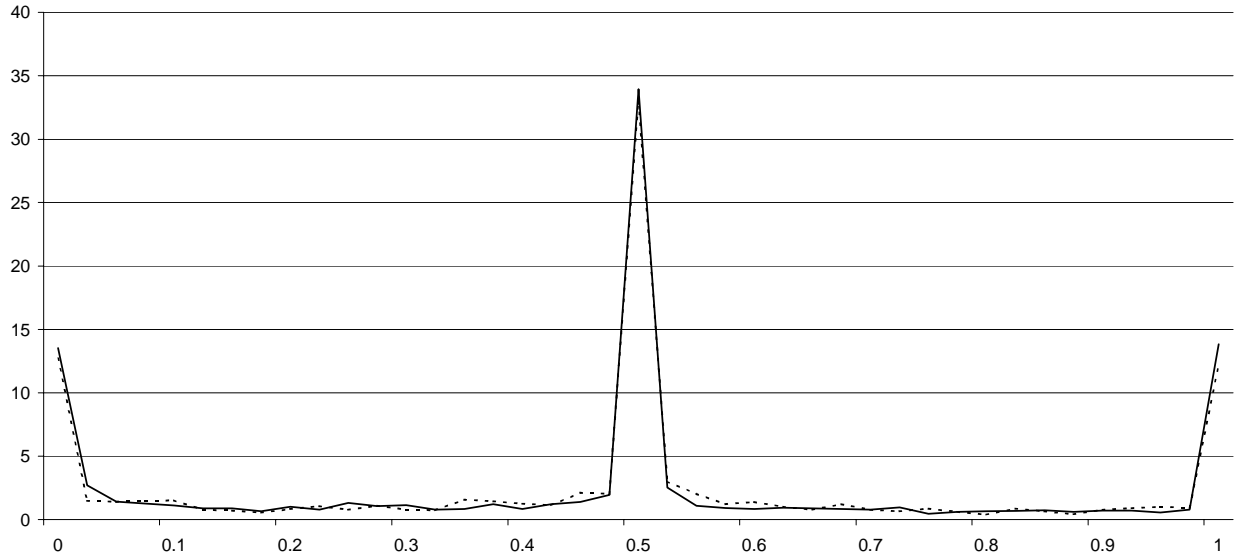


Figure 4 Frequency Distributions of Wife's Share of Inv. Inc, All HHs - Pre- vs. Post-Reform



— Pre-reform - - - Post-reform

Table 1 United Kingdom Tax Rates 1987-1993 Tax Years

Tax Year	Lower Rate % / Taxable Income	Basic Rate % / Taxable Income	Higher Rate(s)
1987-88		27% / 1-17,900	40,45,50,55,60
1988-89		25% / 1-19,300	40
1989-90		25% / 1-20,700	40
1990-91		25% / 1-20,700	40
1991-92		25% / 1-23,700	40
1992-93	20% / 1- 2,000	25% / 2,001-23,700	40
1993-94	20% / 1 -2,500	25% / 2,501-23,700	40

Table 2
Fraction of Wives Receiving Any Investment Income & Their Inv Inc Share,
among Households With Any Investment Income, Diff-in-Diff

Tax Rate Group	Wife Has Investment Inc.			Wife's Share of Investment Inc.		
	Pre-Reform	Post-Reform	Difference	Pre-Reform	Post-Reform	Difference
Spouses Have Same Rate (Group 1)	0.865 (0.006)	0.874 (0.006)	0.009 (0.008)	0.473 (0.008)	0.475 (0.009)	0.002 (0.012)
Both 0%	0.751 (0.024)	0.779 (0.024)	0.028 (0.034)	0.462 (0.027)	0.467 (0.029)	0.005 (0.040)
Both 25%	0.876 (0.006)	0.884 (0.006)	0.008 (0.008)	0.473 (0.009)	0.476 (0.010)	0.002 (0.013)
Both 40%	1.000 (0.000)	0.875 (0.069)	-0.125* (0.069)	0.498 (0.102)	0.468 (0.104)	-0.030 (0.146)
Husband Rate > Wife Rate (Group 2)	0.820 (0.006)	0.854 (0.007)	0.034*** (0.009)	0.404 (0.008)	0.487 (0.010)	0.082*** (0.013)
Husband 25% Wife 0%	0.806 (0.007)	0.836 (0.008)	0.030*** (0.011)	0.411 (0.009)	0.485 (0.011)	0.074*** (0.015)
Husband 40% Wife 0%	0.874 (0.016)	0.900 (0.015)	0.026 (0.022)	0.362 (0.023)	0.503 (0.025)	0.142*** (0.034)
Husband 40% Wife 25%	0.872 (0.019)	0.911 (0.015)	0.040* (0.024)	0.404 (0.027)	0.476 (0.027)	0.071** (0.038)
Diff-in-Diff for Group 2 versus Group 1			0.025** (0.012)			0.080*** (0.018)
Wife Rate > Husband Rate (Group 3)	0.885 (0.023)	0.880 (0.020)	-0.005 (0.030)	0.540 (0.035)	0.515 (0.031)	-0.024 (0.047)
Wife 25% Husband 0%	0.886 (0.025)	0.870 (0.023)	-0.016 (0.034)	0.551 (0.039)	0.513 (0.034)	-0.038 (0.051)
Wife 40% Husband 0%	0.700 (0.153)	0.900 (0.100)	0.200 (0.183)	0.407 (0.164)	0.605 (0.163)	0.197 (0.231)
Wife 40% Husband 25%	0.958 (0.042)	0.939 (0.042)	-0.019 (0.059)	0.517 (0.104)	0.508 (0.088)	-0.009 (0.137)
Diff-in-Diff for Group 3 versus Group 1			0.014 (0.031)			0.027 (0.048)

***, **, * p ≤ .01, .05, .10 respectively (shown for differences only).
Group 1 differences are two-tailed tests, otherwise two-tailed tests.
Standard error of mean or mean difference in parentheses.
All means, save one, are significantly different from zero with p < .01.

Table 3
Fraction of Husbands Receiving Any Investment Income
among Households With Any Investment Income, Diff-in-Diff

Tax Rate Group	Pre-Reform	Post-Reform	Difference
Spouses Have Same Rate (Group 1)	0.878 (0.006)	0.891 (0.006)	0.013 (0.008)
Both 0%	0.807 (0.022)	0.823 (0.022)	0.016 (0.031)
Both 25%	0.885 (0.006)	0.897 (0.006)	0.012 (0.008)
Both 40%	1.000 (0.000)	1.000 (0.000)	0.000 (0.000)
Husband Rate > Wife Rate (Group 2)	0.919 (0.005)	0.869 (0.006)	-0.050*** (0.008)
Husband 25% Wife 0%	0.911 (0.005)	0.854 (0.008)	-0.057*** (0.010)
Husband 40% Wife 0%	0.954 (0.010)	0.895 (0.016)	-0.059*** (0.018)
Husband 40% Wife 25%	0.942 (0.013)	0.932 (0.014)	-0.010 (0.019)
Diff-in-Diff for Group 2 versus Group 1			-0.063*** (0.011)
Wife Rate > Husband Rate (Group 2)	0.755 (0.030)	0.816 (0.024)	0.061* (0.039)
Wife 25% Husband 0%	0.741 (0.034)	0.812 (0.026)	0.071* (0.043)
Wife 40% Husband 0%	0.800 (0.133)	0.700 (0.153)	-0.100 (0.203)
Wife 40% Husband 25%	0.833 (0.078)	0.879 (0.058)	0.045 (0.097)
Diff-in-Diff for Group 3 versus Group 1			-0.048 (0.039)

***, **, * $p \leq .01, .05, .10$ respectively (shown for differences only).

Group 1 differences are two-tailed tests, otherwise two-tailed tests.

Standard error of mean or mean difference in parentheses.

All means are significantly different from zero with $p < .01$.

Table 4
Difference-in-Difference Regression Analysis – Households with Investment Income

	Wife Gets Investment Income				Husband Gets Investment Income				Wife's Share of Investment Income			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Marginal Rate Differs	-0.041*** (0.008)	-0.026*** (0.008)			0.052*** (0.007)	0.058*** (0.007)			-0.068*** (0.007)	-0.063 (-0.152)		
Post-Reform	0.012 (0.007)	0.014 (0.012)	0.008 (0.009)	0.012 (0.012)	0.007 (0.008)	0.016 (0.010)	0.014 (0.008)	0.019 (0.011)	0.013* (0.007)	0.008 (0.010)	0.005 (0.008)	0.001 (0.011)
Marginal Rate Differs X Post-Reform	0.022** (0.010)	0.017* (0.010)			-0.052*** (0.010)	-0.054*** (0.010)			0.060*** (0.010)	0.058*** (0.010)		
Husband Rate>Wife Rate			-0.044*** (0.009)	-0.029*** (0.009)			0.041*** (0.007)	0.047*** (0.007)			-0.068*** (0.007)	-0.063*** (0.008)
Husband Rate<Wife Rate			-0.020 (0.023)	-0.012 (0.024)			0.123*** (0.031)	0.125*** (0.031)			-0.067** (0.026)	-0.061** (0.026)
Husband Rate>Wife Rate X Post-Reform			0.027** (0.013)	0.022** (0.012)			-0.061*** (0.011)	-0.061*** (0.011)			0.072*** (0.011)	0.069*** (0.011)
Husband Rate<Wife Rate X Post-Reform			-0.005 (0.029)	-0.006 (0.030)			-0.054 (0.038)	-0.060 (0.038)			0.018 (0.032)	0.021 (0.032)
Includes controls?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

***, **, * p ≤ .01, .05, .10 respectively (standard errors in parentheses)

One-tailed test significance levels used for bolded variables, otherwise two-tailed tests.

Demographic controls include a quadratic in the wife's age; number of children; number of children under 5; the wife's and husband's years of education; year effects for 1988, 1989, 1992, and 1993; and regional dummies for Greater London, Wales, Scotland, and Ireland.

Table 5
Difference-in-Difference Regression Analysis – Households with Investment Income,
Include Interactions with Magnitude of Rate Difference

	Wife Gets Investment Income				Husband Gets Investment Income				Wife's Fraction of Investment Income			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Husband Rate-Wife Rate	-0.132*** (0.028)	-0.077** (0.029)			0.194*** (0.025)	0.213*** (0.026)			-0.259*** (0.025)	-0.239 (-0.151)		
Post-Reform	0.012* (0.007)	0.015 (0.012)	0.011 (0.008)	0.014 (0.012)	0.007 (0.007)	0.016 (0.010)	0.013 (0.008)	0.021** (0.011)	0.009 (0.007)	0.003 (0.010)	0.001 (0.008)	-0.004 (0.011)
Husband Rate - Wife Rate X Post Tax-Reform	0.074** (0.040)	0.060 (0.040)			-0.203*** (0.038)	-0.214*** (0.039)			0.266*** (0.037)	0.266*** (0.037)		
(Husband Rate-Wife Rate) X Husband Rate>Wife Rate			-0.141*** (0.031)	-0.084*** (0.032)			0.155*** (0.025)	0.172*** (0.026)			-0.259*** (0.026)	-0.239*** (0.028)
(Husband Rate-Wife Rate) X Husband Rate<Wife Rate			-0.058 (0.100)	-0.024 (0.101)			0.494*** (0.124)	0.499*** (0.123)			-0.253** (0.108)	-0.229** (0.108)
(Husb. Rate-Wife Rate) X (H>W) X Post Reform			0.083* (0.045)	0.066 (0.045)			-0.235*** (0.040)	-0.246** (0.040)			0.310*** (0.041)	0.308*** (0.041)
(Husb. Rate-Wife Rate) X (H<W) X Post Reform			0.003 (0.131)	0.009 (0.133)			-0.146 (0.162)	-0.151 (0.162)			0.045 (0.138)	0.046 (0.138)
Includes controls?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

***, **, * p ≤ .01, .05, .10 respectively (standard errors in parentheses)

One-tailed test significance levels used for bolded variables, otherwise two-tailed tests.

Demographic controls include a quadratic in the wife's age; number of children; number of children under 5; the wife's and husband's years of education; year effects for 1988, 1989, 1992, and 1993; and regional dummies for Greater London, Wales, Scotland, and Ireland.