

# The effects of joint taxation of married couples on labor supply and non-wage income<sup>☆</sup>

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Received 25 January 2007; received in revised form 25 January 2008; accepted 30 January 2008

Available online 13 February 2008

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## Abstract

The United States changed its tax treatment of married couples in 1948, from a system in which each spouse paid taxes on his or her own income to a system in which a married couple is taxed as a unit. The switch from separate to joint taxation changed incentives for labor supply and asset ownership. This paper investigates the effects of the conversion to joint taxation, taking advantage of a natural experiment created by cross-state variation in property laws. Married individuals in states with community property laws had always been taxed as if each spouse had earned half of the couple's income, and thus were unaffected by the 1948 legal change. Comparing the behavior of highly-educated taxpayers in affected and unaffected states indicates that the tax change is associated with a decline of approximately 2 percentage points in the employment rate of married women, consistent with the higher first-dollar tax rates they faced after 1948. Women married to self-employed men were also less likely to have non-wage income after 1948, reflecting pre-1948 allocation of family assets to wives for tax purposes. The effects of joint taxation on married men's labor force participation and non-wage income holding are generally not statistically significant.

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*Keywords:* Joint taxation; Labor supply

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## 1. Introduction

A frequent criticism of the U.S. individual income tax is that it does not treat married couples and single individuals in the same way. Some couples face marriage penalties, paying a higher tax bill if married than if single. Others enjoy marriage bonuses, paying less if married. The [Congressional Budget Office \(1997\)](#) estimated that 42% of joint returns incurred marriage penalties in 1996, while 51% received bonuses. After multiple unsuccessful attempts to alter the tax treatment of married couples in the late 1990s, tax legislation in 2001 and 2003 substantially reduced marriage penalties ([Carasso and Steuerle, 2002](#)). These changes are not reflected in the Alternative Minimum Tax. As more

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<sup>☆</sup> I wish to thank Charlie Brown, Phil DeCicca, James Hines, Melinda Miller, Erika Morris, Mine Senses, Dan Silverman, Gary Solon, seminar participants, and, especially, Joel Slemrod for many helpful comments. All errors are my own.

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taxpayers become subject to the AMT, policy makers are likely to revisit the question of the appropriate tax treatment of married couples.

Marriage penalties and bonuses are present in the tax code because the U.S. uses a system of joint taxation. Married couples are taxed as a unit, based on their combined income. Most countries use individual taxation, also known as separate taxation, taxing each person on his or her own income regardless of marital status. Alm and Melnik (2005) report that the U.S. is one of only seven OECD countries to use mandatory joint taxation. The use of joint taxation has been falling. Seven OECD countries converted from joint to individual taxation between 1970 and the present, and legislators in Switzerland recently considered converting. Individual taxation always provides marriage neutrality—the combined tax liability of two people is the same whether they marry or not. Joint taxation lacks marriage neutrality but provides horizontal equity—two married couples with the same total income face the same tax liability, regardless of how income is divided between the spouses. O’Neill (1981) describes the tradeoffs between marriage neutrality and horizontal equity inherent in the choice between individual and joint taxation. This paper considers another aspect of joint taxation, how it affects the labor supply and financial decisions made within families. It does so by taking advantage of a quasi-experiment from the time of the U.S. conversion from separate to joint taxation.

Prior to 1948, the U.S. used separate taxation. Each spouse in a married couple was taxed on his or her own income, and the marginal tax rates of a husband and wife could differ. In the 1940s, the tax structure was highly progressive, with the top marginal rate exceeding 75%. Because husbands usually earned more than wives, husbands’ marginal tax rates were higher than wives’ marginal tax rates, on average. The combination of separate taxation and progressive rates meant that a couple in which one spouse had much greater income than the other spouse faced a larger tax liability than a couple with the same total income, divided evenly between the spouses.

Variation in state property law affected how a couple could divide income between the husband and wife. Most married couples lived in common law states, where income was legally viewed—and taxed—as belonging to the spouse who had earned it. Married couples living in states with community property laws, however, were taxed as if each spouse had earned half of the couple’s total income. This “income-splitting” provision lowered tax liability, on average, by placing more of a couple’s income into lower tax brackets. A 1947 article in *U.S. News and World Report* states that, “Realization that married couples in nine states (soon to be ten) pay smaller taxes than comparable couples in other states is attracting support for a federal program that will tax all families equally. Eight states without the community property advantage already have petitioned Congress to do something about the situation.”

Congress did do something with the passage of the Revenue Act of 1948. This law changed the federal income tax to a system of joint taxation. A married couple’s federal tax liability was computed by averaging the two spouses’ incomes, calculating the tax a single person would pay on that average, and multiplying by two. Because the division of income between spouses no longer affected a couple’s tax liability, state property laws no longer affected tax liability. Federal tax differences between common law and community property states were eliminated.

This paper uses a difference-in-difference estimation strategy to identify the responses to the 1948 introduction of joint taxation at the federal level. I exploit the geographic variation in tax treatment caused by differences in state property law. The federal introduction of joint taxation did not change the division of income between spouses, for tax purposes, in community property states. I treat couples in community property states as a control group, and compare changes across time in common law states to changes across time in community property states. I use census data from 1940 to 1950.

Joint taxation equalizes the marginal tax rates of a husband and wife. Because husbands tended to earn more than wives, the introduction of joint taxation lowered husbands’ marginal tax rates and raised wives’ marginal tax rates, on average. Theory predicts that such a tax change will reduce the labor supply of married women. My empirical results are consistent with this prediction. Across a variety of specifications, joint taxation is estimated to reduce the employment rate by about 2 percentage points among wives in highly-educated couples. The effect on the labor supply of married men is theoretically ambiguous, since the income and substitution effects work in opposite directions. The empirical results indicate that husbands’ labor supply did not change in response to joint taxation. Under separate taxation a husband and wife could lower their tax liability by shifting financial income to the spouse facing a lower marginal rate (usually the wife). Joint taxation eliminates this possibility and should be associated with a decline in the share of wives reporting non-wage income. This prediction receives some empirical support, particularly among couples in which the husband is self-employed.

This paper adds to the literature on the appropriate tax treatment of families. The theoretical literature on this topic begins with Boskin and Sheshinski (1983). Consistent with the Ramsey rule, they show that the tax rate on primary

earners' income should be higher than the tax rate on secondary earners' income if the labor supply of secondary workers is more elastic. In a series of simulations, they show that optimal tax rates on primary earners can be two to three times as large as optimal rates on secondary workers. [Piggott and Whalley \(1996\)](#) argue that an additional behavioral margin must be considered. They show that the input of primary and secondary labor into household production is distorted when an income tax is levied on individuals, but not when it is levied on households. Depending on the size of this distortion, a switch from individual to household taxation can generate either welfare gains or losses. Further analysis of the optimal tax treatment of married couples is carried out in [Apps and Rees \(1999\)](#), [Gottfried and Richter \(1999\)](#) and [Piggott and Whalley \(1999\)](#).

Policy-oriented discussion of the U.S. tax treatment of married couples and families with children begins with [Bittker \(1975\)](#). [O'Neill \(1981\)](#) describes equity, efficiency, and administrative aspects of the choice between separate and joint taxation. [Munnell \(1980\)](#) presents the results of a Treasury Department simulation of a return to separate taxation, showing that such a change would benefit two-earner couples relative to one-earner couples. A 1997 CBO study of the marriage penalty lists reinstating separate taxation as one possible way to reduce or eliminate marriage penalties or bonuses. Many of the papers that discuss joint taxation note that, prior to 1948, state property laws affected a married couple's federal tax liability. [Graetz \(1997\)](#) and [McCaffery \(1997\)](#) both give particular emphasis to this point. [McCaffery](#) offers a thorough discussion of the labor supply disincentives joint taxation generates for secondary earners. This literature demonstrates that the natural experiment I utilize in this paper is well known to tax researchers. However, to my knowledge it has not previously been used for any empirical study of the effects of joint taxation.

Other methods have been used to study the labor supply effects of joint taxation within the United States. [Leuthold \(1984\)](#) uses a sample of married households from the 1979 Michigan Survey of Income Dynamics to predict the probability of labor force participation under a system of income-splitting and under three alternative systems without income-splitting. The probability of participating in the labor force is much higher without income-splitting, particularly for wives married to high-income husbands. [Rosen \(1976\)](#) simulates the change in social welfare resulting from the elimination of joint filing, assuming a particular form of utility. While he also concludes that there would be reductions in labor supply, particularly among wives of high-income husbands, he predicts only a small change in social welfare.

Two papers have used policy changes to investigate the effects of joint taxation in other countries. [Gustafsson \(1992\)](#) compares the labor supply of Swedish women (facing separate taxation) and German women (facing joint taxation). The analysis suggests that the participation rate of Swedish wives would fall from an initial level of 80% to 60% if the German system of joint taxation was adopted. [Stephens and Ward-Batts \(2004\)](#) investigate changes in the division of assets between spouses in response to the 1990 switch from joint to individual taxation in the United Kingdom. They find a significant increase in the share of investment income held by wives, as well as an increase in the fraction of households in which all asset income accrues to the wife.

There is a large literature investigating the closely related question of how tax rates affect labor supply. A thorough summary of this work is provided by [Blundell and MaCurdy \(1999\)](#). In general, married women are found to have more elastic labor supply than married men. Several papers within this literature use a difference-in-difference strategy similar to that used here. [Eissa \(1995\)](#) studies how the Tax Reform Act of 1986 (TRA86) affected married women's labor supply. She exploits the fact that the law had very different effects on marginal tax rates for individuals at different points in the income distribution. She finds substantial labor supply responses for married women at the top of the income distribution. [Moffitt and Wilhelm \(2000\)](#) also use TRA86 as a natural experiment. They focus on the labor supply of high-income men, using repeated cross-sections of the Survey of Consumer Finances. They find no evidence that men's hours of work respond to taxation. The pattern of more elastic labor supply for women than for men is apparent at the bottom of the income distribution as well. [Eissa and Hoynes \(2004\)](#) show that the Earned Income Tax Credit reduces wives' labor force participation rate by more than it increases the participation rate of husbands.

## 2. Tax law, 1940–1950

Because I use data from 1940 and 1950 to analyze the changes caused by the 1948 conversion to joint taxation, here I describe relevant details of the 1940 and 1950 tax codes. In 1940, income tax liability was the sum of three components, the normal tax, surtax, and defense tax. Taxpayers could claim an earned income credit, equal to the smaller of 10% of earned income or \$1400.<sup>1</sup> Although married couples could elect to file a combined return, there

<sup>1</sup> Despite its name, this earned income credit is more similar to today's standard deduction than to today's EITC.

was no separate rate schedule for combined returns. Single filers could claim an exemption of \$800, while married couples could claim an exemption of \$2000, divided in any way between spouses.<sup>2</sup> The normal tax was equal to 4% of net income less exemptions and the earned income credit. The surtax was levied on net income less exemptions, with progressive rates ranging from 4% to 75%. The defense tax was equal to 10% of the sum of normal tax and surtax.

The U.S. federal income tax changed in many important ways between 1940 and 1950. Faced with the need to raise revenue for World War II, the federal government expanded the income tax from a “class tax” paid only by those with the highest levels of income to a “mass tax” paid by a majority. For a married couple, the tax filing threshold was \$2000 in 1940, equivalent to about \$29,600 in year 2007 dollars. Close to 15 million returns were filed, with about 8 million filed by married individuals. By 1950, this threshold had fallen to \$600, or about \$5150 in year 2007 dollars, and 53 million returns were filed (32 million by married couples). Between 1940 and 1950, there were five increases and three decreases in individual income tax rates.<sup>3</sup> The net effect of these changes was to raise tax rates for all levels of nominal income. Another important change, introduced by the Current Tax Payment Act of 1943 and still reflected in today’s tax code, was the introduction of employer withholding of taxes from wage income.

The Revenue Act of 1948, passed on April 2 and retroactive to January 1 of that year, introduced joint taxation of married couples. A new tax rate schedule was established for married couples filing jointly. A married couple’s tax liability was set equal to twice what a single person earning half of their income would pay. This reform extended to all married couples the benefits of income-splitting previously enjoyed only by married couples living in community property states.<sup>4</sup> A Commerce Clearing House tax guide published in 1948 describes this as “the most dramatic change in the tax position of married couples in federal tax history.”

The introduction of joint taxation equalized spouses’ marginal tax rates, increasing the after-tax wage of husbands and reducing the after-tax wage of wives in common law states. The predicted substitution effect is a reduction in leisure (an increase in labor supply) for husbands and an increase in leisure (a reduction in labor supply) for wives. Because income-splitting allows spouses with unequal incomes to place more of their combined income in lower tax brackets, the 1948 conversion lowered tax liability for married couples in common law states, relative to married couples in community property states. I assume that household labor supply decisions can be described by a unitary model.<sup>5</sup> A reduction in tax liability is equivalent to an increase in household income, with no implications for the bargaining power of either spouse. If leisure is a normal good, the income effect leads to a reduction in labor supply of both husbands and wives in common law states. Combining the income and substitution effects, the predicted net effect is a reduction in labor supply of married women in the treatment (common law) states, relative to the labor supply of married women in the control (community property) states. The prediction for married men is ambiguous, because the substitution and income effects of the 1948 law change work in opposite directions.

The conversion from separate to joint taxation is also predicted to affect the division of non-wage income between spouses. Under a system of separate taxation, couples can lower their tax liabilities by shifting income from the spouse in a higher tax bracket to the spouse in a lower tax bracket. There are limited opportunities for shifting wage income.<sup>6</sup> Shifting interest or dividend income, however, may be relatively easy. Couples may choose to open savings accounts or to purchase assets in the wife’s name rather than the husband’s. Business income can be shifted by organizing a business as a family partnership. Prior to 1948, couples living in common law states had an incentive to shift income to wives. The introduction of joint taxation removed this incentive, and should be associated with a decline in the fraction of wives in common law states with non-wage income.

By 1950, the defense tax had been repealed and the standard deduction had replaced the earned income credit. Married taxpayers could claim a personal exemption of \$1200, while single taxpayers could claim a personal exemption of \$600.<sup>7</sup> The standard deduction was the smaller of 10% of adjusted gross income (roughly, income less

<sup>2</sup> The exemption for each dependent was \$400, divided between husband and wife at their discretion.

<sup>3</sup> For details, see Tempalski (2003).

<sup>4</sup> The Revenue Act of 1948 also included a host of other changes, notably the creation of an additional exemption for a taxpayer or spouse over age 65. For a description of the Revenue Act of 1948, from the perspective of one of the authors of the Act, see Surrey (1948).

<sup>5</sup> Samuelson (1956) introduced the first unitary model of family decision making, a consensus model in which spouses pool their resources and maximize their joint utility.

<sup>6</sup> In the 1930 case *Lucas v. Earl*, the U.S. Supreme Court ruled that contracts dividing the wage income of one spouse between husband and wife would not be recognized for tax purposes.

<sup>7</sup> The exemption for each dependent was also \$600.

Table 1  
Sample calculations of 1940 and 1950 taxes

Husband's income	1940		1950	Change		Diff-In-Diff
	CP	CL		CP	CL	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>A. Husband's marginal tax rates (%)</i>						
500	0.0	0.0	0.0	0.0	0.0	0.0
1000	0.0	0.0	15.66	15.66	15.66	0.0
2500	3.96	3.96	15.66	11.70	11.70	0.0
5000	3.96	3.96	18.03	14.70	14.07	0.0
7500	3.96	8.36	23.66	19.70	15.30	−4.40
10,000	8.36	12.76	23.66	15.30	10.90	−4.40
15,000	10.56	17.60	34.57	24.01	16.97	−7.04
20,000	12.77	27.49	45.51	32.74	18.02	−14.72
30,000	20.90	37.40	53.71	32.81	16.31	−16.50
40,000	27.54	43.95	59.18	31.64	15.23	−16.41
<i>B. Wife's marginal tax rates (%)</i>						
500	0.0	0.0	0.0	0.0	0.0	0.0
1000	0.0	0.0	15.66	15.66	15.66	0.0
2500	3.96	3.96	15.66	11.70	11.70	0.0
5000	3.96	3.96	18.03	14.07	14.07	0.0
7500	3.96	3.96	23.66	19.70	19.70	0.0
10,000	8.36	3.96	23.66	15.30	19.70	4.40
15,000	10.56	3.96	34.57	24.01	30.61	6.60
20,000	12.77	3.96	45.51	32.74	41.55	8.81
30,000	20.90	3.96	53.71	32.81	49.75	16.94
40,000	27.54	3.96	59.18	31.64	55.22	23.58
<i>C. Tax liability (1940 dollars)</i>						
500	0	0	0	0	0	0
1000	0	0	35	35	35	0
2500	11	11	270	259	259	0
5000	110	110	700	590	590	0
7500	209	275	1241	1032	966	−66
10,000	308	528	1832	1524	1304	−220
15,000	748	1258	3495	2747	2237	−510
20,000	1320	2336	5530	4210	3194	−1016
30,000	2869	5614	10,523	7654	4909	−2745
40,000	5223	9552	16,162	10,939	6610	−4329

Note: Calculations assume that all income is earned by the husband, that the husband claims the entire personal exemption, that the couple claims no dependents, and that, under a community property regime, each spouse is taxed on half of the husband's income. All dollar amounts are in 1940 dollars.

business expenses) and \$1000. Taxpayers computed a tentative normal tax, equal to 4% of income less exemptions and deductions, and a tentative surtax, with marginal rates ranging from 2% to 91%. The combined normal tax and surtax was reduced by 13% if less than \$400, by 9% if between \$400 and \$100,000, and by 7.3% if greater than \$100,000.

Table 1 illustrates marginal tax rates and tax liability in 1940 and 1950. The examples in Table 1 assume that all of the couple's income is earned by the husband, that the husband claims the entire personal exemption, and that the couple claims no dependents. The marginal tax rates of husbands are shown in the top panel, with those of wives shown in the middle panel. The tax liability for a couple is shown in the bottom panel. All dollar amounts are expressed in 1940 dollars. Column 1 shows 1940 values in community property states. In these states, each spouse is taxed as if he or she has earned half of the couple's income, so a husband and wife face the same marginal tax rate.<sup>8</sup> Column 2 shows 1940 values in common law states. With a federal system of separate taxation in place, each spouse is taxed on his or

<sup>8</sup> Although the Treasury Department had argued against this treatment of income for tax purposes, the U.S. Supreme Court had upheld the practice in the 1930 case *Poe v. Seaborn*.



her own income. The husband's marginal tax rate increases as his income increases. The wife's marginal tax rate does not increase with her husband's income. As long as the husband's income exceeds the personal exemption amount, the wife's first dollar of income is always taxed at the lowest rate. Tax liability is shown in the bottom panel of Table 1. For couples with income of \$6000 or less (the majority of couples in 1940), federal tax liability is the same in community property and common law states. Married couples with income above \$6000 face a lower tax bill in a community property state. Marginal tax rates and tax liabilities for 1950 are shown in column 3 of Table 1. With joint taxation in place, the tax difference between common law and community property states has been eliminated and a husband and wife in a common law state now face equal marginal tax rates.

Comparing the marginal tax rates faced by taxpayers in different situations, as shown in Table 1, motivates the analysis performed in this paper. Between 1940 and 1950, changes in the tax code caused tax rates to increase, at all levels of income. In community property states, the changes in tax rates and liability reflect all of the changes in the tax code *except* the introduction of joint taxation. The corresponding changes in husbands' marginal tax rates, wives' marginal tax rates, and tax liability are shown in column 4 of Table 1. In common law states, married couples were affected by all of the changes in the tax code that had affected those in community property states *and* by the introduction of joint taxation. Changes in common law states are shown in column 5 of Table 1. Comparing changes in common law states to changes in community property states isolates the effect of joint taxation. These differences are shown in column 6. The 1948 conversion from separate taxation to joint taxation lowered the marginal tax rates faced by husbands living in common law states, relative to the rates faced by husbands living in community property states. The 1948 conversion raised marginal tax rates faced by wives in common law states, relative to rates in community property states.

Table 1 demonstrates that the conversion to joint taxation had an impact only on high-income couples. Only couples with income above \$2000 were subject to the income tax in 1940, and only couples with income above \$6000 could benefit from income-splitting. A large majority of married couples had income below these levels. According to 1940 census data the median family wage income for 1939 was only \$1231. There is limited information on more comprehensive measures of income. The Survey of Spending and Saving in Wartime, conducted in 1941 and early 1942 shows that, in 1941, 4.5% of families had money income of \$5000 or more. The Civilian Spending and Saving Survey shows that, in 1942, 9.5% of families had money income of \$5000 or more.<sup>9</sup> Both income growth and changes in the tax code between 1940 and 1948 substantially expanded the number of couples potentially affected by the switch to joint taxation. A 1947 Treasury study described in the *New York Times* (Morris, 1947) estimated that 4.9 million married couples (about 19%) would save a total of \$743 million annually as a result of the change. In my empirical work, I restrict attention to those with high levels of education, under the assumption that these individuals are most likely to be towards the top of the income distribution and hence most likely to be affected by the introduction of joint taxation. In Section 2 I provide evidence supporting this assumption.

The calculations in Table 1 assume that all of a couple's income is earned by the husband. This is the situation in which the conversion to joint taxation has the largest effects. Considering only wage income, this assumption is true for the majority of the sample analyzed here. Approximately 92% of husbands and 18% of wives worked in 1940. Among couples with a working wife, the average wife's wage income is 70% of the average husband's wage income (\$778 for wives and \$1123 for husbands) and the wife's wage income is greater than the husband's wage income in 28% of cases. As the incomes of the two spouses become more equal, the impact of the 1948 conversion on the couple's tax liability becomes smaller. The calculations in Table 1 should thus be taken as an upper bound on the effects of the 1948 conversion.

In 1940, 35 states had an individual income tax (six of the eight community property states and 29 of the 41 common law states). No state adopted an income tax between 1940 and 1950. While there were certainly many changes in state taxes over the decade, one important pattern generally holds. At any level of income, state tax liabilities averaged across the common law states were roughly twice as large as state tax liabilities averaged across the community property states. For example, consider married couples in which the husband earns \$10,000 in nominal dollars. Averaged across the common law states with taxes, such couples would owe \$164 in 1940 and \$126 in 1950. Averaged across the community property states with taxes, such couples would owe \$87 in 1940 and \$67 in 1950. At an income of \$20,000 the average 1940 tax liabilities are \$460 in common law states and \$275 in community property states, while the average 1950 tax liabilities are \$390 in common law states and \$205 in community property states.<sup>10</sup>

<sup>9</sup> These statistics were published in *Statistical Abstract of the United States (1944–1945)*.

<sup>10</sup> The state tax calculator for this time period was generously provided by Jon Bakija.

### 3. Methodology and data

#### 3.1. Estimation strategy

I use a difference-in-difference estimation strategy with pooled cross-sections of data from 1940 and 1950. I compare the 1940 to 1950 change in labor supply for a group affected by the introduction of joint taxation (married individuals living in common law states) to the 1940 to 1950 labor supply change for a group not affected (married individuals living in community property states). Specifically, I estimate the following equation separately for married men, assumed to be primary earners, and married women, assumed to be secondary earners:

$$Y = \beta_0 + \beta_1 \cdot 1950 + \beta_2(1950 \cdot CL) + \beta_3 \cdot STATE + \gamma X + \varepsilon. \quad (1)$$

Here,  $Y$  is the outcome of interest, either a measure of labor supply or an indicator for having non-wage income. The variable  $1950$  is a dummy equal to one in the year 1950, and  $CL$  is a dummy equal to one for common law states (the treatment states). The vector  $STATE$  is a full set of state dummy variables. The coefficient on the time dummy,  $\beta_1$ , describes the time trend that is common across states. The difference-in-difference estimator is  $\beta_2$ , the coefficient on the interaction term. The vector  $X$  includes measures of age, race, and the presence of children younger than 18. Similar estimation strategies have been used by Eissa (1995) and Moffitt and Wilhelm (2000) to estimate labor supply responses to taxation.

When a labor supply measure (employment status, weeks worked, or hours worked) is the dependent variable, theory suggests that, within a unitary household model,  $\beta_2$  should be negative for women. If the substitution effect of the tax change dominates the income effect,  $\beta_2$  should be positive for men. When a measure of a wife's non-wage income is the dependent variable, I expect  $\beta_2$  to be negative.



Fig. 1. States with non-elective community property laws, 1940.

As described in more detail below, I estimate Eq. (1) using individual-level decennial census data from 1940 and 1950. It is important to note that these data consist of two independent cross-sections, rather than a panel. Because the observations are at the level of the individual while the explanatory variable of interest is at the state level, the assumption of independent errors may be violated. OLS estimation may produce standard errors that are biased downwards (Moulton, 1990). To address this problem, all reported standard errors are robust and clustered at the state level.

The difference-in-difference strategy depends on two assumptions for identification. The first assumption is that, absent any treatment, trends would have been the same in the control and treatment groups. The second assumption is that the composition of each group is unchanging over time. I believe that both of these assumptions are met in the natural experiment used here.

Besley and Case (2000) point out that any policy difference distinguishing the treatment from the control group may itself be endogenous. Some states may adopt particular laws precisely because of related trends within the state. If so, the first identifying assumption is violated. Why did certain states have community property laws in the first place? If attitudes about women's employment or property rights led to the adoption of community property laws, it would be unreasonable to expect similar trends in community property and common law states, absent the introduction of joint taxation. The historical pattern of adoption of community property laws, described by DeFuniak (1943), suggests that this is not the case. Community property laws have always been concentrated in the west and south. As shown in Fig. 1, Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, and Washington had such laws in place in 1940. These are the states that make up the control group in the following analysis. All of these states except Idaho and Washington had used systems of community property since their organization as U.S. states. Idaho switched to a community property system in 1867 and Washington switched in 1869, both states choosing to adopt the policy of their populous neighbor, California. Most of the community property states had significant Spanish settlement in their earliest days. Their state constitutions include features rooted in Spanish law, including community property regimes. It is unlikely that Spanish colonial influence had direct effects on changes in labor supply or non-wage income allocation decisions between 1940 and 1950. However, I address the possibility that the outcomes of interest changed differentially for Hispanics and for non-Hispanics by including a measure of Spanish ancestry as a control variable.

There were some states that adopted community property regimes years after their state constitutions were written. Jones (1988) provides a timeline of these changes. Oklahoma instituted an elective community property system in 1939, followed by Oregon in 1943. In the 1944 case *Commissioner v. Harmon* the U.S. Supreme Court ruled that elective community property laws did not permit couples to split income for federal tax purposes. Oklahoma then converted to a non-elective community property system in 1945, as did the territory of Hawaii. Michigan, Nebraska, Oregon, and Pennsylvania converted from common law to community property in 1947. The conversion from a system of common law to one of community property is a significant legal undertaking. In addition to its effect on taxes, it has implications for divorce and probate laws. The fact that several states were willing to enact such a conversion emphasizes that individuals were concerned about—and likely responding to—the federal tax treatment of married couples.<sup>11</sup>

Much evidence suggests that these conversions were directly motivated by tax considerations. For example, a pamphlet published by a Philadelphia lawyer in 1947 opens with the line, “The Community Property Law was adopted to save income taxes for residents of Pennsylvania” (Clarke, 1947). The most compelling evidence that these changes were tax-motivated is that all of the states that had converted in the mid-1940s reverted back to common law shortly after the federal introduction of joint taxation (Columbia Law Review, 1950). In my analysis, observations from the five converting states are included in the treatment (common law) group. This is because I have data from 1940 and 1950. While the tax changes between, for example, 1947 and 1950 would differ, the tax changes between 1940 and 1950 are the same for post-1940 converting states and common law states. Dropping all observations from converting states has little effect on the general pattern of results.

Other challenges may be made to the validity of the identifying assumptions. There is evidence that different regions of the country were differentially affected by World War II. If World War II mobilization rates differed systematically

<sup>11</sup> Since 1948, only one state has switched from one type of property law to the other. Wisconsin became a community property state in 1986. Hanneman (1986) reports that lawmakers made the switch in part to promote equal treatment of wage-earners and homemakers.



between common law and community property states, labor supply in these two groups likely evolved differently. I address this concern directly in Section 5.1. More generally, if people living in community property and common law states have different characteristics, they may be subject to different trends over time. For example, if wealthier couples chose to live in community property states, and if wealthier wives experienced greater growth in labor force participation during the 1940s for reasons unrelated to taxes, my results will be biased towards finding a negative estimate of  $\beta_2$ . I mitigate this potential problem by including controls for observable characteristics, such as race and age.<sup>12</sup> Finally, the assumption of stable populations in the control and treatment groups may be violated due to cross-state migration. I address this point in Section 5.3.

### 3.2. *Description of data*

I use the 1940 and 1950 1% Public Use Microdata Samples of the U.S. Census of Population. Each census attempts to enumerate all individuals living in the United States. Information collected at the household level includes details about a household's composition and location. In 1940, limited information on the characteristics and value of housing is available. Basic demographic information is collected for each individual, including age, race, sex, marital status, relationship to the head of household, and state of residence.<sup>13</sup> All individuals 14 and older are asked about their primary activity in the week prior to the census. Answers to this question are used to determine employment status. Employed individuals are those either at work, or with a job but temporarily not working. Unemployed individuals are those actively seeking work. Individuals not working, with no job, and not looking for work are classified as not in the labor force. Although this classification is standard in modern surveys, 1940 was the first year in which it was used in the census. Those in the labor force report their current occupations and industries, whether they are self-employed, and the number of hours worked in the week prior to the census.

In both 1940 and 1950, every fifth census respondent was designated a "sample-line" person, and asked additional questions. This design means that not every household in the population includes a sample-line person. However, the 1% samples used here are drawn entirely from households including a sample-line person. The sample-line person can be anyone within a household. The number of additional questions asked is greatest if the sample-line person is the head of household, less if the sample-line person is another adult member, and least if the sample-line person is younger than 14. Questions about years of completed schooling, about weeks worked in the year prior to the census, and about income were asked of all adults in 1940 but of only sample-line adults in 1950. The census provides weights that correct for the differing representation of large and small households in the sample.

Unfortunately, the census includes no questions about a household's tax bracket, and limited information about a household's taxable income. 1940 was the first year in which the census collected any information about income. The income questions were controversial, and were intentionally placed at the end of the schedule, so that other information could be collected from those who refused to report their income. The previous year's wage and salary income for each spouse is reported, top coded at \$5000. In addition, there is an indicator for whether each spouse has more than \$50 in income from sources other than wage and salary. In 1950, the set of income questions is larger, but is asked only of sample-line persons. If the sample-line person in a household is the husband, he reports his own wage and salary income, net business income, and net income from other sources, each for the previous calendar year and each top coded at \$10,000. He also reports the same items for other family members. If the sample-line person is the wife, she reports her own wage and salary income, net business income, and net income from other sources, but is not asked about the income of other family members.

Because the switch to joint taxation had an impact only on those at the top of the income distribution, I restrict my sample to those likely to have high income. Ideally I would define my sample based on taxable income. In the absence of this information, I define my sample based on education. I include a couple if the sample-line person is either the husband or wife and reports 12 or more years of completed schooling. In 1940, 24.9% of sample-line husbands and 28.3% of sample-line wives reported 12 or more years of completed schooling. By 1950, this figure had risen to 35.2% of sample-line husbands and 39.9% of sample-line wives. I further restrict my sample to married couples who head households. Individuals living in group quarters are not included in the sample, nor

<sup>12</sup> I also estimate the models without these covariates, and obtain similar results. This suggests that sorting is not driving my results.

<sup>13</sup> Alaska and Hawaii did not become states until 1959 and thus are not included here.

Table 2  
Summary statistics, high-education married couples

	1940		1950	
	Community property	Common law	Community property	Common law
<i>Husbands</i>				
% White	97.2	97.7	97.3	97.3
Average age	40.6	40.4	40.9	40.7
% under 65	93.0	93.7	93.3	93.5
% employed last week	90.1	92.4	89.5	92.1
% self-employed	23.1	23.8	19.9	20.6
Weeks worked last year	44.1	45.2	44.2	44.9
Hours worked, if employed	47.5	47.3	46.3	46.4
% with non-wage income	38.9	36.0	42.0	40.0
<i>Wives</i>				
% White	97.2	97.8	97.2	97.3
Average age	36.9	37.0	37.5	37.6
% under 65	96.1	96.6	96.3	96.1
% employed last week	18.5	17.5	29.5	26.3
Weeks worked last year	8.9	9.0	14.7	13.5
Hours worked, if employed	40.2	40.1	39.3	38.3
% with non-wage income	11.6	10.5	10.7	8.7
<i>Households</i>				
% with kids ≤18	39.0	42.4	44.5	47.2
% homeowners	44.0	39.6	NA	NA
% with Spanish surname	1.0	0.2	1.3	0.3
<i>N</i>	7965	35,045	14,870	59,078

Note: The sample is restricted to married household heads and their spouses, excluding those living in group quarters. For observations from 1940, the sample is further restricted to couples in which either spouse reports 12 or more years of schooling. For 1950, the sample is restricted to couples in which the sample-line spouse reports 12 or more years of schooling. Census sample weights are used in all calculations.

are married couples listed as a secondary family or subfamily within a household headed by another married couple.

Several pieces of evidence support the assumption that those with higher levels of education have higher incomes. With each individual's value top coded at \$5000, the mean 1939 wage and salary income is \$1577 for families in the high-education sample and \$1077 for others.<sup>14</sup> Rates of homeownership in 1940 are about 40% for both groups, but the mean home value is \$4620 for those with more education and \$2875 for those with less. The 1950 census reports 1949 family income, top coded at \$10,000. The mean for those in the high-education sample is \$4300, vs. \$2934 for others.

Weighted summary statistics for the sample, by year and group, are presented in Table 2. There are 43,010 married couples in the 1940 sample and 73,948 in the 1950 sample. Means for race, age, employment status, and the presence of children are based on data for all individuals in the sample. The number of individuals is reported in the last row of Table 2. Means for weeks worked and non-wage income are based on data for all individuals in 1940 but only sample-line individuals in 1950, and so the relevant sample sizes for these cells are smaller. Among the married couples in the 1950 sample, the husband is the sample-line person in 33,915 cases and the wife is the sample-line person in 40,033 cases. Homeownership is available in 1940 but not in 1950. The measure of Spanish ancestry is constructed by the Census Bureau, based on an individual's last name.

The means for 1940 suggest that community property states are in fact a reasonable control group for common law states. Initial age and racial composition differences between community property and common law states are small. The initial means for education, non-wage income, and homeownership are slightly higher in community property states, suggesting that married couples in community property states may be slightly wealthier than married couples in common law states. Reflecting the Spanish origin of community property laws, the share of individuals of Spanish ancestry is larger in community property states. This difference is more pronounced when the sample is not restricted to

<sup>14</sup> Median values are \$1407 for the high-education sample and \$800 for others.

Table 3  
Labor supply regression results for wives

	Employed last week (1)	Weeks worked last year (2)	Any weeks last year (3)	Hours worked last week (4)
1950	0.131 (0.007)	6.356 (0.521)	0.176 (0.014)	−0.901 (0.429)
Interaction	−0.022 (0.011)	−1.118 (0.613)	−0.021 (0.017)	−0.993 (0.508)
Age	0.023 (0.001)	0.685 (0.068)	0.008 (0.002)	0.116 (0.051)
Age squared	−0.0004 (0.00001)	−0.013 (0.0008)	−0.0002 (0.00002)	−0.001 (0.0007)
White	−0.092 (0.015)	−3.033 (0.703)	−0.082 (0.017)	1.255 (0.506)
Spanish	−0.0009 (0.017)	−0.024 (1.235)	−0.012 (0.026)	−0.214 (0.994)
Any kids	−0.280 (0.005)	−14.225 (0.355)	−0.307 (0.007)	−2.997 (0.251)
<i>N</i>	113,244	61,033	61,033	23,754

Note: Standard errors (in parentheses) are robust and clustered at the state level. All regressions include a full set of state dummies. Census sample weights are used in all regressions. All individuals under 65 are used in the employment regressions, all sample-line individuals under 65 are used in the weeks worked regressions, and all employed individuals under 65 are used in the hours worked regressions.

those with high levels of education. Among all married couples, the share with Spanish surnames is approximately 5% in community property states and 0.5% in common law states.

#### 4. Baseline results

##### 4.1. Labor supply

Labor supply regression results for wives are reported in Table 3, with standard errors in parentheses. Each column corresponds to a different measure of labor supply: employment in the week prior to the census, weeks worked in the year prior to the census, employment in any week in the year prior to the census, and hours worked in the week prior to the census for the employed. In order to focus on those most likely to be in the labor force, I restrict the sample to wives under age 65.<sup>15</sup> In columns 2 and 3 the sample is restricted to wives who are sample-line persons, because weeks worked is asked only of sample-line individuals in 1950. In column 4 the sample is restricted to wives who are employed. Each regression includes a full set of state dummies to control for time-invariant differences across states. Coefficients on the state dummies are not reported in the table.

The difference-in-difference estimate (the interaction of the 1950 and common law dummies) is negative in all four regressions. This suggests that the introduction of joint taxation did in fact reduce the labor supply of wives in highly-educated couples. The coefficient of −0.022 in column 1 indicates that wives in common law states had a 2.2 percentage point decline in the probability of being employed, relative to wives in community property states. This coefficient is significantly different from zero at the 5% confidence level. This estimate is consistent with the means in Table 2. The control variables in column 1 of Table 3 have the expected signs: the common time trend is positive and large; employment is increasing in age, but not linearly; White women are less likely than non-White women to be employed; and the presence of children has a large negative effect on employment.

Column 2 of Table 3 repeats the analysis with weeks worked in the year prior to the census as the dependent variable. Individuals who do not work are included in the regression, with weeks worked set equal to zero. The difference-in-difference estimate is negative with a *p*-value of 0.07. The coefficient of −1.118 indicates that the average number of weeks worked fell by 1.1 among married women in common law states, relative to married women in community property states. This captures labor supply responses on both the extensive and intensive margins. If weeks

<sup>15</sup> Within my high-education sample, the 1940 employment rate for wives under 65 is 18.2%. The rate for wives 65 and older is 3.4%. In 1950 employment rates were 27.8% for the younger group and 5.6% for the older group.

Table 4  
Labor supply regression results for husbands

	Employed last week (1)	Weeks worked last year (2)	Any weeks last year (3)	Hours worked last week (4)
1950	−0.005 (0.002)	−0.138 (0.360)	−0.954 (0.005)	−1.054 (0.315)
Interaction	0.004 (0.003)	−0.318 (0.404)	−0.010 (0.006)	0.280 (0.383)
Age	0.015 (0.001)	1.153 (0.059)	0.003 (0.0004)	0.381 (0.037)
Age squared	−0.0002 (0.00001)	−0.014 (0.0008)	−0.00005 ( $5.83 \times 10^{-6}$ )	−0.004 (0.0005)
White	0.034 (0.008)	1.736 (0.417)	−0.00004 (0.0027)	2.425 (0.364)
Spanish	−0.017 (0.009)	−1.656 (0.777)	−0.007 (0.011)	−1.462 (0.490)
Any kids	0.020 (0.002)	1.554 (0.113)	0.00007 (0.001)	1.015 (0.108)
N	110,358	50,898	50,898	101,444

Note: Standard errors (in parentheses) are robust and clustered at the state level. All regressions include a full set of state dummies. Census sample weights are used in all regressions. All individuals under 65 are used in the employment regressions, all sample-line individuals under 65 are used in the weeks worked regressions, and all employed individuals under 65 are used in the hours worked regressions.

of work are spread uniformly across the year, there is a mechanical relationship between the percentage of people employed in a given week and the average number of weeks worked: The average number of weeks will equal 52 times the employment rate. This implies that each coefficient in the weeks equation should be 52 times the corresponding coefficient in the employment equation.<sup>16</sup> Most of the coefficients, including the difference-in-difference estimate, roughly follow this pattern.

The dependent variable in column 3 of Table 3 is a dummy equal to one if an individual worked in any week in the previous calendar year. This measure is conceptually similar to the employment dummy in column 1, and the point estimates are similar. The probability of a wife working in any week in the previous year fell by 2.1 percentage points in common law states relative to community property states, although this result is not statistically different from zero.

In column 4, the dependent variable is the number of hours worked in the week prior to the census, for those individuals who are employed. The difference-in-difference estimate is −0.993 with a *p*-value of 0.06. One interpretation of this result is that there is a labor supply response on the intensive as well as on the extensive margin—some wives cut back their work hours in response to the introduction of joint taxation. This interpretation may be incorrect if changes in the group of wives who are working cause a sample selection problem. Instead it may be the case that entrants to the labor force work fewer hours in common law states than in community property states. To investigate the degree to which changes in the composition of the labor force are responsible for the relative decline in hours in common law states, I repeat the hours worked regression for a sample of wives with persistent labor force participation. The hours worked measure is based on activity in the census year itself, either 1940 or 1950. The weeks worked measure is based on the previous year. I repeat the hours regression of column 4, conditioning on having worked more than 26 weeks in the previous year. The difference-in-difference estimate is about half as large for this group, and not significantly different from zero (−0.521 with a standard error of 0.442). This argues against interpreting the negative coefficient in column 4 as a labor supply response on the intensive margin. This is consistent with the large literature on wives' labor supply, which finds much more substantial responses on the participation margin than on the intensive margin.

Labor supply regression results for husbands are shown in Table 4. The difference-in-difference coefficients are substantially smaller than the corresponding coefficients for wives, and are not statistically different from zero in three

<sup>16</sup> There are reasons why this pattern may not appear in the data. The employment and weeks worked measures have different reference periods. The employment question refers to the week prior to the census, while the weeks worked question refers to the year prior to the census. Particularly at the time of the 1940 census, as the country was emerging from the Great Depression, employment during a single week of the census year may not closely correspond to employment in an "average" week of the previous year. In addition, agriculture and other industries have strong seasonal patterns in employment, confounding the expected relationship between employment and average weeks worked.

of the four regressions. This suggests that husbands' labor supply did not change in response to the introduction of joint taxation. The finding that wives' labor supply was affected while husbands' was not is consistent with the consensus that wives have more elastic labor supply than husbands.

My empirical strategy relies on the pre-1948 difference in tax treatment between community property and common law states. For the substantial majority of couples who were not earning enough to pay income tax in 1940, there is no difference in tax treatment. Therefore, a difference-in-difference analysis for this group should show no difference in employment trends between the two groups of states. I repeat the analysis of Table 3 for married couples in which the sample-line spouse has fewer than 12 years of education. The difference-in-difference coefficients are much smaller than for the high-education group, and are never statistically different from zero. For example, the difference-in-difference coefficient in the wives' employment regression is only 0.002 with a standard error of 0.005. This finding strengthens the case that the results in Table 3 are due to the introduction of joint taxation rather than to some other factor.

Average education levels rose between 1940 and 1950. Therefore, using 12 years of education as the lower bound for inclusion in the high-education group is more restrictive in 1940 than in 1950. An alternative is to rank individuals by years of completed schooling and to define highly-educated households as those with a sample-line spouse at the top of the distribution. In 1940, 10.7% of sample-line individuals had completed 13 or more years of schooling. In 1950, 10.9% had completed 14 or more. Restricting attention to just these individuals yields a sample of 37,269 wives under age 65. In the employment regression for these wives the difference-in-difference coefficient is  $-0.035$  with a standard error of 0.015. As expected, the employment response to joint taxation is stronger among this more selective group. In weeks worked, any weeks, and hours worked regressions for this group the difference-in-difference point estimates are somewhat larger than those shown in Table 3, but are imprecisely estimated.<sup>17</sup>

#### 4.2. Non-wage income

In this Section I investigate whether the introduction of joint taxation, which removed the tax advantage to equalizing income between spouses, is associated with a decline in the share of wives with non-wage income. I also present results for husbands. If income is transferred between spouses, any decline in the non-wage income of wives must be accompanied by an increase in the non-wage income of husbands. However, my measure of non-wage income is a dummy variable for having non-wage income above some threshold level. Reallocations of income that cause wives to fall below this threshold may be going to husbands already above the threshold.

Specifically, the dependent variable is a dummy equal to one if an individual receives at least \$50 of non-wage income in 1940 or at least \$100 of non-wage income in 1950. In 1940, the only information on non-wage income is a yes or no question, asked of all individuals over 14, indicating receipt of \$50 or more. In 1950, sample-line individuals report categorical amounts of income from business and from other non-wage sources. Receiving \$50 in 1940 is equivalent to receiving approximately \$85 in 1950. Therefore, I classify 1950 observations reporting business and other non-wage income in the \$1 to \$99 category as zeroes, and those in any higher category as ones. Non-wage income is broadly defined. It includes business profits, rent, and income from financial assets (interest and dividends), all of which are taxable. It also includes non-taxable in-kind income such as the value of food grown and consumed by a farming family<sup>18</sup> and the value of living quarters and food received by domestic employees. This measure of non-wage income does not include receipts from the sale of land, buildings, businesses, or securities.

Table 5 presents results related to the receipt of non-wage income. The estimation sample consists of all sample-line married individuals in high-education couples. In addition to the control variables used in the labor supply equations, there is a dummy variable equal to one for those who live on a farm. This is motivated by the inclusion of food in the census definition of non-wage income. Column 1 shows the results for married women. With the introduction of joint

<sup>17</sup> The difference-in-difference estimates are  $-1.841$  (1.212) in the weeks worked regression,  $-0.024$  (0.031) in the any weeks regression, and  $-1.166$  (0.716) in the hours worked regression. The sample size is 16,531 in the two weeks regressions and 8060 in the hours regression.

<sup>18</sup> The 1940 instructions to census enumerators point out, "On almost any farm on which foodstuffs are grown or poultry is raised for home consumption the value of these products consumed in the course of a year will amount to more than \$50 and some member of the family (usually the head) should be credited with this income." Perhaps these instructions explain in part why living on a farm is associated with a greater probability of a husband having non-wage income, but the opposite is true for wives. Among husbands, 69.9% of those on farms have non-wage income, vs. 30.8% of those not on farms. For wives, the corresponding numbers are 8.4% and 9.0%.



Table 5  
Non-wage income regression results

	Wives (1)	Husbands (2)
1950	−0.005 (0.003)	0.047 (0.009)
Interaction	−0.015 (0.005)	0.004 (0.011)
Age	−0.001 (0.0008)	−0.004 (0.001)
Age squared	0.00006 (0.00001)	0.0001 (0.00001)
White	0.004 (0.006)	0.095 (0.013)
Spanish	−0.024 (0.014)	−0.054 (0.018)
Any kids	−0.018 (0.003)	0.008 (0.003)
Farm	−0.005 (0.004)	0.337 (0.014)
N	62,905	54,053

Note: Standard errors (in parentheses) are robust and clustered at the state level. Regressions include a full set of state dummies. Census sample weights are used in all regressions. Sample-line individuals are included in the sample.

taxation, wives in common law states experienced a 1.5 percentage point decline in the probability of having non-wage income, relative to wives in community property states. This effect is quite significant economically, since only 10% of wives in common law states had non-wage income in 1940. This evidence is consistent with the work of [Stephens and Ward-Batts \(2004\)](#), which shows large interspousal income-shifting effects in response to the much later elimination of joint taxation in the U.K.

If non-wage income is a greater share of total income for older couples than for younger couples, and if older couples are wealthier, older couples may be more likely to shift non-wage income between spouses. This intuition is supported by estimates performed separately for wives of different ages. For wives under 40, the difference-in-difference coefficient is −0.005 with a standard error of 0.004. For wives between 40 and 59, the coefficient is −0.022 (0.010) and for wives 60 and older, the coefficient is −0.068 (0.025).

The probability of having non-wage income is higher for employed wives than for wives who are not employed. Averaged across the two census years, 12.6% of employed wives in my sample have non-wage income, compared to 9.0% of wives who are not employed. In part, this is due to the inclusion of some fringe benefits in the definition of non-wage income. It is also possible that employment has a positive causal effect on the probability of a wife holding financial assets. Regardless of the mechanism by which employment affects non-wage income, the correlation between the two affects the interpretation of the non-wage income regression results. [Table 5](#) reflects two effects of joint taxation. The direct effect, on which I have been focusing, is that joint taxation eliminates any marginal tax rate differences between spouses and thus eliminates any incentive to transfer income to the lower-earning spouse. In addition, by reducing wives' labor force participation, joint taxation can indirectly reduce the share of wives with non-wage income. To investigate the degree to which joint taxation impacts non-wage income *through* its effect on employment, I add employment status to the non-wage income regression for married women. As expected, the employment status variable has a positive and large effect on the probability of having non-wage income. The coefficient is 0.050 with a standard error of 0.004. However, the difference-in-difference estimate is virtually unchanged. The coefficient is −0.014 with a standard error of 0.005.

Relative to being an employee, being self-employed may offer greater opportunity for interspousal income shifting. For example, a self-employed husband may organize his business as a husband–wife partnership and transfer income to his wife by paying her a salary. [Jones \(1988\)](#) describes several such cases investigated by the IRS in the 1940s. [Schuetze \(2006\)](#) compares the self-employment rates of wives in the U.S. and in Canada. With a system of separate taxation and progressive rates, Canadian taxpayers, like U.S. taxpayers in common law states prior to 1948, have an incentive to shift income to the lower-earning spouse. Schuetze finds that self-employment rates of wives married to

self-employed husbands are significantly higher in Canada than in the U.S., and that Canadian wives are more likely to work in the same industry as their husbands. He interprets these results as evidence of income shifting by the self-employed in Canada.

If self-employment indeed makes it easier to shift income, the difference-in-difference estimate in a non-wage income regression should be larger in absolute value when the husband is self-employed. In Table 6 I repeat the non-wage income regressions by self-employment status of the husband. Wives of self-employed men experienced a significant 3.9 percentage point decline in the probability of having non-wage income. The difference-in-difference estimate for other wives is much smaller and not statistically different from zero. Self-employed husbands experienced a significant 5.9 percentage point increase in the probability of having non-wage income, while other husbands experienced no significant change. As expected, the difference-in-difference coefficients are larger in absolute value for those couples likely to have more scope for shifting income between spouses.

## 5. Extensions

The above analysis shows that wives' employment and non-wage income fell in common law states, relative to community property states, and attributes the difference to the introduction of joint taxation. In this Section I consider alternative explanations.

### 5.1. World War II

Using data from 1940 and 1950 to study responses to a 1948 tax change raises the question of how tax-induced behaviors can be distinguished from war-induced behaviors. Certainly World War II affected female labor supply. Goldin (1991) uses data from retrospective surveys conducted in 1944 and 1951 to show that while the war did draw women into the labor force, many female wartime workers had left the labor force by 1950, and more than half of the women who entered the labor force during the 1940s did so after the end of the war. Mulligan (1998) argues that war-related changes in budget sets cannot explain all of the dramatic changes in labor supply observed during the war. He considers a variety of other pecuniary explanations but concludes that together they leave a large portion of labor supply changes unexplained.

If both common law and community property states were *similarly* affected by the war, the time trend in my estimation equation would adequately account for the effects of the war. However, Acemoglu et al. (2004) show that World War II mobilization rates differed across states, and that states with higher mobilization rates saw greater entry of women into the labor force. If mobilization rates were systematically different in common law and community property states, a key assumption of the difference-in-difference estimation strategy is violated. Changes in the outcomes of interest may have differed in the treatment and control groups, even without the introduction of joint taxation. Specifically, if lower mobilization rates in common law states contributed to slower growth in women's labor force participation, the difference-in-difference estimate will be biased towards finding a negative effect of joint taxation on wives' labor supply.

Acemoglu et al. define the mobilization rate as the fraction of men registered for the draft, between ages 18 and 44, who were drafted or enlisted for the war. They classify states with mobilization rates greater than or equal to 49% as high mobilization states. The community property states with high mobilization are Arizona, California, Idaho, and Washington. The common law states with high mobilization are Colorado, Connecticut, Kansas, Maine, Massachusetts, Montana, New Hampshire, New Jersey, Oregon, Pennsylvania, Rhode Island, and Utah. Among the married couples in my sample, 67% of those subject to community property laws lived in high mobilization states, while 26% of those subject to common law lived in high mobilization states. Additional evidence on mobilization differences across states comes directly from the census data. In 1950, male sample-line persons were asked about their veteran status. In community property states, 44.5% of sample-line husbands in my regression sample reported that they were World War II veterans, compared to 41.7% of those in common law states.<sup>19</sup>

To investigate the possibility that World War II is biasing my results, I add a dummy variable equal to one for high mobilization states, interacted with the 1950 indicator. This variable controls for the 1940 to 1950 change in labor

<sup>19</sup> The share of husbands with World War I or other military experience is also higher in community property states than in common law states. In 1950, 54.7% of husbands in community property states and 51.0% of husbands in common law states report some military service.

Table 6

Non-wage income regression results, by self-employment status of husband

	Wives		Husbands	
	Husband is self-employed (1)	Husband is not self-employed (2)	Self-employed (3)	Not self-employed (4)
1950	0.006 (0.014)	−0.007 (0.005)	−0.008 (0.008)	0.071 (0.014)
Interaction	−0.039 (0.016)	−0.008 (0.006)	0.059 (0.011)	−0.010 (0.016)
Age	0.005 (0.001)	−0.004 (0.001)	0.006 (0.001)	−0.019 (0.001)
Age squared	−0.00001 (0.00001)	0.0001 (0.00001)	−0.00004 (0.00001)	0.0003 (0.00001)
White	−0.007 (0.024)	0.002 (0.007)	0.004 (0.032)	0.071 (0.013)
Spanish	−0.045 (0.031)	−0.021 (0.014)	−0.037 (0.098)	−0.043 (0.029)
Any kids	−0.035 (0.006)	−0.015 (0.003)	0.006 (0.005)	−0.004 (0.004)
Farm	−0.044 (0.006)	0.007 (0.007)	0.039 (0.008)	0.174 (0.016)
N	14,315	48,590	11,506	42,547

Note: Standard errors (in parentheses) are robust and clustered at the state level. All regressions include a full set of state dummies. Census sample weights are used in all regressions. Sample-line individuals are included in the sample.

supply experienced in high mobilization states. The resulting difference-in-difference estimates are shown in Table 7, column 1. This specification offers less support for the hypothesis that joint taxation is responsible for the relative decline in wives' labor supply in common law states. The difference-in-difference estimate is significantly different from zero for only one of the four labor supply measures, employment. The point estimate is similar to that in the baseline specification. It indicates that, controlling for World War II mobilization, the probability of employment fell by 2.4 percentage points for wives in common law states relative to wives in community property states.<sup>20</sup> Results related to having non-wage income are shown for all wives and for wives married to self-employed husbands. Among the second group, joint taxation is found to reduce the probability of having non-wage income by 2.7 percentage points.

### 5.2. Other state-specific changes

The probability that a wife is employed may vary with industry composition. For example, female employment rates are substantially higher in personal services than in agriculture. If the mix of industries in each state remained constant over time, including state dummies in my regression would adequately control for industrial composition. Instead, the mix of industries differs across states and over time. Between 1940 and 1950, agriculture's share of employment fell in all states, but by substantially more in the south than in the northeast. This change is part of the much longer decline in agricultural employment. Other industrial changes are more specific to the 1940s. World War II led to increases in manufacturing, with the largest increases in the mid-west and the smallest in New England. Failing to control for industrial composition may be biasing my results. It is possible that the slower growth of wives' employment in common law states is due to slower growth of female-intensive industries rather than the introduction of joint taxation.

I address changes in industrialization by adding state- and year-specific employment shares for five industries. I construct these shares using data on all employed persons in the 1% census samples for 1940 and 1950. The industries I include are agriculture, manufacturing, retail and wholesale trade, professional services, and personal services. Together, these industries employed about 85% of all female workers in both 1940 and 1950. When I include employment shares in my regression, I replace the full set of state dummies with a dummy equal to 1 for those in common law states. Otherwise, the level of variation remaining for identification is very limited. I continue to control for World War II

<sup>20</sup> Using the alternative high-education sample, defined as those in the top 10% of the education distribution, yields the same pattern of results. There is a significant effect of joint taxation only in the employment regression, where the estimate is −0.039 with a standard error of 0.015.

Table 7

Wives' difference-in-difference estimates, alternative specifications

	Including 1950×high mob (1)	Adding industrial shares (2)	Adding unemployment rates (3)	Dropping strategic movers (4)
Employment last week	−0.024 (0.011)	−0.022 (0.009)	−0.022 (0.009)	−0.025 (0.015)
Weeks worked last year	−0.846 (0.804)	−0.519 (0.760)	−0.661 (0.729)	−0.747 (1.125)
Any weeks last year	−0.021 (0.020)	−0.018 (0.020)	−0.020 (0.019)	−0.020 (0.025)
Hours worked last week	−0.534 (0.397)	−0.715 (0.388)	−0.939 (0.444)	−0.710 (0.423)
Non-wage income	−0.008 (0.007)	−0.009 (0.007)	−0.009 (0.006)	0.002 (0.008)
Non-wage income, if husband is self-employed	−0.027 (0.012)	−0.030 (0.014)	−0.030 (0.013)	−0.016 (0.014)

Note: Each cell represents the difference-in-difference estimate and standard error (in parentheses) from a separate regression. Standard errors are robust and clustered at the state level. Census sample weights are used in all regressions. Each regression in columns 1 and 4 includes a full set of state dummies. Each regression in columns 2 and 3 includes a common law dummy.

mobilization. The difference-in-difference estimates from this specification are shown in column 2 of Table 7. The shares of employment in personal services and in professional services have a large positive effect on the probability that a wife is employed. Even controlling for industrial composition, a wife's probability of employment fell by 2.2 percentage points in common law states relative to community property states. There is also evidence that wives' hours of work fell in common law relative to community property states.<sup>21</sup> Not surprisingly, controlling for industrial composition has little effect on the non-wage income results. There is no effect of joint taxation on the probability of having non-wage income for the group of all wives in my sample, but there is an effect for wives with self-employed husbands. Joint taxation is associated with a 3 percentage point decline in having non-wage income for these wives.

State-level unemployment rates are also likely to influence the probability that a wife is employed. I construct state- and year-specific unemployment rates using the number of all unemployed persons and the total number of persons in the labor force, from the 1940 and 1950 1% census samples. Column 3 of Table 7 shows the difference-in-difference estimates from regressions that include unemployment rates, in addition to the set of variables used in column 2. Adding the state unemployment rate has very little impact on the results. The difference-in-difference estimate is negative and significant in the employment and hours worked regressions, and in the non-wage income regression for wives with self-employed husbands.<sup>22</sup>

The start of the baby boom falls within my period of analysis. It is possible that the difference in wives' employment growth across common law and community property states is due to differences in birth rates, rather than the introduction of joint taxation. In order to explain the patterns I observe in the data, the baby boom would have needed to be larger in common law states than in community property states. Vital statistics show that this was not the case. I compare the total number of births in each state during the five-year period immediately before the baby boom, 1941 through 1945, to the number of births in the first five years of the baby boom, 1946 through 1950. On average, community property states saw a 34.5% increase in births while common law states saw a 27.1% increase.

All of the states in the control group (that is, with community property laws in 1940) are in the west or south census regions. If there are regional trends in employment, unrelated to the introduction of joint taxation, the difference-in-difference estimates will be biased. I investigate the possibility that regional differences are driving my results by dropping each of the four census regions in turn. In doing so, I use the specification in column 1 of Table 7, that includes state dummies and a control for World War II mobilization. With wives' employment as the dependent variable, the difference-in-difference estimate is negative and significant in three out of four cases. This estimate ranges from −0.017 when the south census region is excluded to −0.034 when the west census region is excluded. Although

<sup>21</sup> For the alternative high-education sample, the difference-in-difference estimate is significant only in the wives' employment regression. The coefficient is −0.037 with a standard error of 0.012.

<sup>22</sup> Again, the difference-in-difference estimate is significant only in the employment regression when the alternative sample is used. The coefficient is −0.032 with a standard error of 0.014.

this is a wide range, it is not surprising that estimates change when a quarter or more of the sample is dropped. The difference-in-difference estimate is not statistically significant when the northeast region is dropped, perhaps because average income is highest in the northeast. With the non-wage income indicator as the dependent variable, and with the sample restricted to wives of self-employed husbands, the difference-in-difference estimate is negative and significant with any of the four regions excluded. The coefficient varies from  $-0.023$  to  $-0.030$ . I also investigate the possibility that a single state is driving the results by dropping each state in turn. The results related to wives' employment are very similar to those in column 1 of Table 7 except when Texas is dropped. Without Texas, the difference-in-difference estimate falls to  $-0.013$  with a standard error of 0.010. The results related to wives' non-wage income are always very similar to those in Table 7.

### 5.3. Migration

One of the assumptions of the difference-in-difference approach is that the composition of each group (treatment and control) is unchanging over time. In my case, migration between common law and community property states may cause this assumption to be violated. There are many possible scenarios in which migration could affect my results. The most interesting is that, between 1940 and 1948, high-income married couples in which the wife worked (or earned non-wage income) may have moved from common law to community property states specifically to lower their federal tax liability. If this is the case, wives' observed employment rates could have fallen in common law states, relative to community property states, without any change in individual labor supply behavior.

Although the census data do not allow me to identify any individual's movement across states between 1940 and 1950, they do contain some information related to lifetime migration. In both 1940 and 1950, all individuals report their state (or country) of birth. Cross-tabulating state of birth and state of residence at the time of census enumeration offers some evidence that migration from common law to community property states increased during the 1940s. Among the husbands in my sample, the share born in a common law state but enumerated in a community property state increased from 8.9% in 1940 to 10.2% in 1950. Among wives, this share increased from 8.4% to 9.9%. This increase is not simply a reflection of greater overall mobility by 1950 than by 1940. For both husbands and wives, the share moving in the opposite direction—born in a community property state but enumerated in a common law state—increased by less, from 1.3% to 1.5% for husbands and from 1.4% to 1.7% for wives.

How do characteristics of those who move from common law states to community property states compare to characteristics of the rest of the population? There is little difference in employment rates in 1940, although by 1950 movers are more likely to be employed. In 1940, the share of wives in my sample who were employed was 17.7% in both groups. In 1950, this figure was 29.3% among those born in common law and enumerated in community property states and 26.7% among all other wives. Those who move from common law to community property states are more likely to have non-wage income. Wives who had moved to community property states had a probability of reporting non-wage income of 12.3% in 1940 and 12.1% in 1950. Among other wives, this probability was 10.5% in 1940 and 8.7% in 1950. This suggests that migration is more likely to be introducing bias in the non-wage income regressions than in the employment regressions. Other notable patterns include a higher percentage of college graduates, a higher percentage of Whites, and a lower percentage of households with children, among those who had moved to community property states than among all others.

If couples in which the wife was employed or had non-wage income tended to move from common law to community property states between 1940 and 1950, my earlier estimates will be biased upwards (in absolute value) as a measure of labor supply or non-wage income responsiveness to joint taxation. That is, the wives' coefficients in Tables 3 and 5 overstate the effects of joint taxation. To investigate this possibility, I eliminate from my sample those individuals born in common law states and enumerated in community property states. This process is designed to eliminate those who have made specifically tax-motivated moves, but likely also excludes some individuals who have moved for other reasons. I repeat the baseline set of regressions, augmented with the war mobilization term, for this reduced sample. Results are shown in Column 4 of Table 7. Dropping the potentially strategic movers has little effect on my employment results. There is still evidence that joint taxation reduced the probability that a wife is employed. The difference-in-difference estimate is  $-0.025$  with a  $p$ -value of 0.105.<sup>23</sup> However, there is now less evidence that couples responded to joint

<sup>23</sup> When potentially strategic movers are dropped from the alternative high-education sample, there is no longer evidence of a significant decline in wives' employment. The resulting difference-in-difference estimate is  $-0.032$  with a standard error of 0.027.



taxation by shifting non-wage income away from wives. Even for wives married to self-employed husbands, the difference-in-difference estimate is not statistically different from zero.

#### 5.4. Checking for persistent trends

The difference-in-difference method relies on the assumption that, absent any treatment, trends would have been the same in the control and treatment groups. One way to examine the validity of this assumption is to look at a time period in which there was no treatment, and compare changes in the treatment and control groups over that period. Between 1950 and 1960, the federal tax treatment of married couples in common law states was always the same as in community property states. The set of states in each group is the same as in the 1940–1950 analysis.

I repeat my analysis using census data from 1950 and 1960. Again, I restrict the sample to married individuals from couples with high levels of education. For the 1940 and 1950 sample, a couple's inclusion in my high-education sample depends on the schooling of the sample-line person. Recall that every fifth census respondent was designated a sample-line person. The 1960 census did not make use of the sample-line technique. I use a random number generator to designate 20% of wives and 20% of husbands sample-line individuals, and use the education levels of these individuals in selecting the 1960 sample. I include a dummy equal to one in the year 1960, the interaction of the 1960 dummy and a common law state dummy, as well as a full set of state dummies and the age, race, and children covariates used above.<sup>24</sup> Between 1950 and 1960 there is no evidence that wives' employment fell in common law states relative to wives' employment in community property states. In fact, employment trends moved in the opposite direction. The coefficient on the 1960 and common law interaction term is 0.012 with a standard error of 0.006.

#### 5.5. A counter-example: single individuals

Single individuals were not affected by the introduction of joint taxation. Like married individuals, though, they were subject to other factors and trends that may have caused changes in labor supply and non-wage income between 1940 and 1950. Repeating the above analysis for a group of single individuals, and demonstrating that there is no differential response between community property and common law states, supports the interpretation of my previous results as the effects of joint taxation. I use single household heads who have completed 12 or more years of schooling. For women, the difference-in-difference estimate in the employment regression is positive, 0.037, with a standard error of 0.021. For other measures of labor supply, the difference-in-difference estimate is not statistically different from zero. For single men, none of the difference-in-difference estimates is significantly different from zero. This demonstrates that there was no "effect" of joint taxation on single individuals.

An alternative approach is to pool together single and married individuals, and to add a dummy for being married and the interaction of this dummy with the *1950·CommonLaw* term. The coefficient on *1950·CommonLaw* represents the difference in employment growth between control and treatment groups for singles. I expect this to be close to zero. The sum of this coefficient and the one on *Married·1950·CommonLaw* represents the difference for married individuals. I expect this to be negative. With women's employment status as the dependent variable, the first coefficient is  $-0.002$  with a standard error of 0.018. The second coefficient is  $-0.018$  with a standard error of 0.015.

#### 5.6. Magnitude of the results

All of the specifications in Table 7 show that, between 1940 and 1950, the employment rate among wives from highly-educated couples fell by about 2 percentage points in common law states relative to community property states. The various specifications control for a number of factors other than joint taxation that might have caused divergence in wives' employment rates in the two groups of states. One interpretation of the remaining 2 percentage point decline is that it represents a response to joint taxation. Is the magnitude of this employment change a plausible response to the introduction of joint taxation?

<sup>24</sup> The Spanish surname variable is generated differently in 1960 than in previous years. In 1960, it is available only for individuals living in five states: Arizona, California, Colorado, New Mexico, and Texas. Results are very similar if this variable is dropped or included (and set equal to zero for observations from all other states).

One way to investigate this question is to compare my results to reasonable estimates of female labor supply elasticity. There is evidence that this parameter changes over time, and there are few estimates from the 1940–1950 period. Goldin (1990, pages 131–138) reports on a handful of early labor force participation studies. They suggest that both compensated and uncompensated wage elasticities were near zero at the beginning of the century, when social norms against female employment were strong. Elasticities rose until about 1950, as married women's employment opportunities expanded. The highest uncompensated elasticity estimate reported by Goldin is Mincer's value of 1.5 for 1950. Blundell and MaCurdy (1999) show that studies relying on data from the 1970s to 1980s produce a wide range of estimates, with a midpoint of roughly 0.8. Blau and Kahn (2007) and Heim (2007) demonstrate a very sharp decline since 1980. Blau and Kahn estimate that wives' participation elasticities fell from about 0.6 in 1980 to about 0.3 in 2000.

There are several reasons why labor supply elasticities may have been particularly high circa 1948. First, Blau and Kahn link higher values of elasticity to lower labor force participation rates. Wives' participation rates in 1940 were under 20%. Second, labor supply elasticity is high when the number of women close to the margin between working and not working is high. This number was likely particularly high in the period I consider. As Goldin (1991) demonstrates, World War II had not only initially drawn women into the labor force, but had generated substantial churning of women into and out of jobs. Third, cultural factors such as the low probability of divorce meant that few married women faced the prospect of eventually becoming a primary earner. Hence, wives' participation could be quite elastic.

The census data used in this analysis do not permit me to directly calculate the participation elasticity implied by the response to joint taxation. I do have all the information needed to calculate the numerator, the percentage difference in employment rates between the treatment and control groups. I use the coefficients from the baseline employment specification for wives, reported in Table 3, to predict the probability of employment for each wife in my sample. The average predicted probability in the common law states increases from 16.7 to 25.6, a 53.3% increase. The average predicted probability in the community property states increases from 17.5 to 29.0, a 65.7% increase. Thus, the numerator of the elasticity is  $-0.124$  ( $0.533-0.657$ ). I do not have all the information needed to calculate the denominator, the percentage change in net-of-tax rates. Ideally I would use income information to calculate the marginal tax rate facing each wife, then compute the average percentage change in  $(1 - \text{MTR})$  in each group of states. However, the income measure included in the 1940 census, wage and salary income only, is top coded at \$5000. Differences in tax treatment across community property and common law states are only evident once income is above \$6000.<sup>25</sup> Simulating tax rates across the two groups of states, based on the income information available, shows no difference in tax treatment.

If I instead assume that the appropriate labor supply elasticity is 1.5, my results imply that wives' values of  $(1 - \text{MTR})$  must have declined by 8.3% in common law states, relative to community property states. This is certainly a larger change than was actually experienced on average. Returning to the hypothetical marginal rates and tax liabilities in Table 1, only wives from families with income of \$26,000 or more experience this degree of change. In these families, wives' net-of-tax rates changed from 82.86 to 49.12 (a 40.7% change) in community property states and from 96.04 to 49.12 (a 48.9% change) in common law states. Families with incomes of \$26,000 or more make up a small share of the overall distribution in this time period, and likely make up a small share of even the high-education sample I use in this paper. If the appropriate elasticity is actually 2, the corresponding degree of change in net-of-tax rates would have been experienced by those with family incomes of \$18,000 or more.

In addition to the likelihood that labor supply elasticity was unusually high over the 1940–1950 period, it is also possible that an unobserved difference between common law and community property states is biasing my results upwards. One possibility is that wives' expectations about how they would be affected by joint taxation were inaccurate. In families living in common law states and earning too little to actually be affected, wives may have been discouraged from working simply by hearing about the aggregate predicted effects of a switch to joint taxation.<sup>26</sup> Another possibility is that decisions to marry were affected by the introduction of joint taxation, causing changes in the

<sup>25</sup> In the 1950 census, family income is top coded at \$10,000. This corresponds to \$5825 in 1940 dollars, again below the threshold at which tax differences exist between common law and community property states.

<sup>26</sup> This response would be analogous to current misperceptions surrounding the estate tax. Using data from a detailed 2002 survey of attitudes towards taxation, Slemrod (2006) shows that 49% of respondents thought most families have to pay the estate tax, while at the time approximately 2% of decedents actually paid the tax.

composition of my sample. The ability to split income between spouses creates a marriage bonus. This bonus existed throughout the 1940s in community property states, but only beginning in 1948 in common law states. If couples were newly induced to marry in common law states, and if women in these newly married couples had low rates of employment, my results will be biased towards finding a negative effective of joint taxation on wives' employment.

## 6. Conclusion

This paper utilizes a quasi-experiment to estimate the effects of joint taxation on labor supply and the allocation of non-wage income between spouses. Most married couples experienced a change from separate to joint taxation in 1948, but those in states with community property laws had been able to split income between spouses, for tax purposes, even prior to 1948. It is interesting to note that while the geographic disparities between states generally pushed public opinion in favor of the tax change, many women's groups were opposed to joint taxation. According to the *Chicago Daily Tribune*, existing organizations such as the D.A.R. spoke out against the change, and new groups such as the Committee to Keep Joint Income Tax Returns Optional were formed. Florence Guy Seabury sent a letter to the *New York Times* in 1942, when an earlier proposal to introduce joint taxation was being considered by Congress. She writes, "To those who know the long struggle of women in this country to own property, to control their earnings, to be guardians of their children, to move out of the subject class, this measure is a symbol. It represents the defeat of a major principle of our way of life."

My results suggest that, while the worst fears of joint taxation opponents have been unrealized, indeed joint taxation does affect wives' labor supply and non-wage income. The difference-in-difference results suggest that joint taxation led to a significant reduction in labor supply for married women, and that this reduction was concentrated on the participation margin. In the baseline model, using a sample of couples with high levels of education, the probability of employment fell by approximately 2 percentage points for wives in common law states relative to wives in community property states. This change is not explained away by likely candidates such as differences in World War II mobilization, in unemployment, in industrial composition, or in marriage or fertility behavior. The baseline model and richer specifications also show that wives of self-employed men in common law states experienced a decline in the relative probability of having non-wage income. There is no evidence that husbands' labor supply and non-wage income were significantly affected by joint taxation.

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