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Earnings of Social Security Beneficiary Couples: Evidence from a Recent Program Rule Change[1]

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Abstract:

This paper exploits exogenous variation in earnings of married Social Security beneficiary couples following the change in the retirement earnings test in 2000 to investigate the complementarity of leisure between husbands and wives. We estimate our results using longitudinal annual earnings data on matched couples. Findings suggest that among beneficiary couples in which both spouses work, the change in the earnings test increased annual earnings of husbands by 17 to 32 percent (Table 5). Among wives who were directly affected by the rule change only through their husbands' earnings, the average increase in earnings was 1 to 5 percent (Table 7). Small positive elasticities of the wife's earnings with respect to the husband's suggest that leisure of husbands and wives are complements.

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1. Introduction

Understanding how older married couples jointly adjust their labor supply in response to changes in the earnings of one spouse is an important issue as Social Security reform continues to simmer. Social Security programs are financed primarily by a payroll tax on Social Security taxable earnings up to the annual maximum. Benefit amounts are determined by a progressive benefit formula designed to transfer resources to beneficiaries with low lifetime earnings. When the tax rate or transfer rate changes for one spouse, we expect that spouse will adjust his or her own labor supply. That adjustment could further affect the spouse's labor supply as well. Understanding the link between the labor supply of husbands and wives is essential to evaluating the effectiveness of program rule changes and the resulting changes in the earnings of older couples. Yet empirical studies that analyze the relationship between the earnings of husbands and wives have not provided convincing results.

Many research papers have used tax reforms to measure labor supply elasticities (e.g., Eissa 1995), but none have used U.S. tax reforms to measure the extent of non-separability of leisure of husband and wife because U.S. federal and state income taxes are based on household earnings, not individual earnings. As a result, U.S. tax reforms directly affect the labor supply incentives of both husbands and wives. However, the earnings test on Social Security benefits occurs at the individual level. If the husband is above the full retirement age and the wife is below the full retirement age, the earnings test should have a direct effect on the labor supply of the husband, but not of the wife. Results in this paper suggest, however, that the repeal of the earnings test modestly increased the labor supply of the wife, implying that leisure of husbands and wives are complements. Thus, our findings corroborate the results of Hurd (1990) and Blau (1998) who found support for complementarity of leisure in the timing of retirement of husbands and wives and in labor force transitions of one spouse given the labor force status of the other spouse. Data sets with small numbers of married couples have hampered previous work, but we take advantage of administrative data on Social Security beneficiary couples in which the spouse claims benefits based on the primary worker's record to overcome that problem.

The change in the retirement earnings test in 2000 removed the test for those who attained the full retirement age (FRA) or above as of December 31st, 1999. Because husbands are often a few years older than their wives, and because the 2000 rule change is specific to age and calendar year, the change in the earnings test affects the older spouse but not the younger spouse in many married couples. Thus, we consider changes in earnings among younger spouses following the rule change to be the result of effects through the older spouse's earnings and not the direct effects of the rule change on the younger spouse's earnings.

The main focus of the existing literature on Social Security and labor force activity has been on primary worker beneficiaries, whose benefit is based on their own earnings. Motivated by the decline in labor force participation among older men during the post World War II period, the linkage between Social Security and male labor force participation is the focus of a number of studies during the last several decades. The estimated size of the effects of Social Security on retirement and labor force participation, however, varies from one study to another (Krueger and Meyer 2002). Blau (1997, 1998), McCarty (1990) and Hurd (1990) investigated the effects of Social Security on older married women and reported a relatively small negative impact on the wife's labor force participation. Coile (2004) analyzed "spillover effects" from incentives faced by spouses and found a large response for husbands and a very small response for wives. Recently, Schirle (2008) showed that a substantial portion of the recent increases in older married men's participation rates can be attributable to the increased participation rates of their wives. The shared leisure effects tend to dominate the income effects among older workers, again in accordance with our finding of the preference to share leisure time.

A major empirical hurdle in identifying the effects of the Social Security program on the labor supply of older workers is the fact that all workers face an identical benefit schedule in the Social Security system. In response to the identification problem, many recent studies have exploited exogenous variation in Social Security benefits generated by the retirement earnings test. Effects of the retirement earnings test on the age at which people claim Social Security benefits, their work participation, labor hours, and earnings among workers who have reached the retirement age or are close to it have been studied by Song and Manchester (2007), Gruber and Orszag (2003), Disney and Tanner (2002), Friedberg (2000), and Baker and Benjamin (1999), among others. Although the retirement earnings test compensates for current benefit reduction by increasing future benefits, past studies show that many people have responded as if the test is a pure tax (Song and Manchester 2007, Friedberg 2000). The elimination of the test yields results equivalent to reducing marginal tax rates, where those marginal tax rates depend on an individual's earnings levels and benefit entitlement status. The marginal tax rate for older beneficiaries who earn above the test threshold to the point until all benefits are withheld was as much as 33 percent prior to the elimination of the test in 2000. Removing the test has provided a nontrivial work incentive not only for primary worker beneficiaries but also their dependents. Yet none of the past studies has explored how the effects on primary workers further propagate to their spouses.

Although the labor force participation rate of older women is now close to that of older men, 2.5 million individuals aged 62 and above in December 2006 received Old-Age benefits as spousal beneficiaries, entitled based on the earnings of their spouses (*Annual Statistical Supplement to the Social Security Bulletin,* 2007, Table 5A1.3).[2] The purpose of this paper is to investigate a possible causal linkage from the labor force activity of husbands to the earnings of spousal beneficiary wives. More specifically, this paper illustrates how a policy change can be used to estimate the complementarity of leisure between husbands and wives using large and generally accurate administrative data sets of the Social Security Administration. The paper contributes to the existing literature in three ways. First, it makes use of the change in the earnings test as an exogenous policy change and exploits some large administrative micro data sets. Second, it examines the causal link from the earnings of the husband to those of the wife among older Social

[2] In this paper, we classify both dually-entitled beneficiaries and spousal-benefit-only beneficiaries as spouse beneficiaries.

Security beneficiaries. Third, it investigates older workers' labor supply in response to an earnings windfall.

In Section 2, we give an overview of retirement earnings test rules and the removal of the test in 2000 for those who have attained the FRA or higher. Section 3 discusses our empirical strategy. In Sections 4 and 5, we present the data sets used in the paper and briefly describe the data. Sections 6, 7, and 8 report estimates of the effect on the earnings of husbands and wives as well as causal link estimates from the earnings of the husband to the wife's earnings. In Section 9, we present some evidence on how the estimates vary over different earnings levels. Section 10 concludes.

2. The Retirement Earnings Test and Spousal Benefits

The retirement earnings test, which has been part of the Social Security Old-Age and Survivors Insurance (OASI) program since its inception in 1935, has been modified over the years by exempting certain age groups, increasing allowable earnings, and decreasing withholding rates. A rationale for modifications is to encourage older people to work so that their earnings can supplement their Social Security benefits as people live longer and healthier lives. The most dramatic modification occurred in April 2000 when Congress enacted the Senior Citizens Freedom to Work Act of 2000. That Act removed the earnings test for individuals at the full retirement age (FRA), then age 65 and over. Individuals who receive Old-Age benefits but have not reached the FRA remain subject to the earnings test. After the removal of the test for those aged FRA-69, Social Security benefits of workers who do not reach the FRA in the test year are reduced by $1 for every $2 earned above the earnings test threshold. Individuals who reach the FRA during the year are subject to a more moderate test: benefits are reduced $1 for every $3 earned beyond the modified threshold, set at $33,240 in 2006.

The retirement earnings test operates in a relatively simple manner. Social Security benefits are reduced if earnings exceed the threshold amounts, but the reduction in benefits is at least partially offset in the future through benefit recomputation and the delayed retirement credit. Self-employment earnings are counted for the year in which they are received, regardless of when they are earned. Countable income for the earnings test includes wages from covered employment (including worker contributions to 401(k)s), cash payments for agricultural or domestic work, cash tips, deferred compensation, and pay for work not covered by Social Security if the work is done in the United States. Table A displays changes in exempt amounts under the earnings test from 1990 to 2009.

When a worker files for retirement benefits, the worker's spouse may be eligible for a benefit based on the worker's earnings if the spouse is at least age 62. Depending on the spouse's age at claiming, the spousal benefit can be as much as half of the primary worker's full benefit amount that is neither reduced for early retirement nor increased for delayed retirement. If the spouse begins receiving benefits before the FRA, the spouse will receive a reduced benefit. If a spouse is eligible for a retired worker benefit based on his or her own earnings, and if that benefit is higher than the spousal benefit, the spouse will receive the retired worker benefit. Otherwise the spouse will receive the equivalent of the spousal benefit. When earnings of the primary worker exceed the test threshold, the total family benefit is reduced accordingly, including all benefits (other than Disability Insurance benefits) payable to anyone in the family entitled to benefits on the earnings record of the primary earner. The earnings of primary worker beneficiaries can reduce spousal benefits (and hence affect the spouse's earnings), but the earnings of the spousal beneficiary affect only her own benefits.

Economic theory predicts little or no effects of the earnings test on labor supply if the benefit recomputation and delayed retirement credit are actuarially fair, but empirical findings show that eliminating the test yields results equivalent to reducing marginal tax rates on earnings. The relevant population may not be aware of the transfer aspect of the earnings test or may not view the transfer as fair. The magnitude and direction of possible effects depend on the ratio of the rates of return at which individuals are willing to lend (not claim, or claim benefits and work above the threshold) to the rates of return that are available to them through Social Security. The latter is affected by the benefit withholding rate, test threshold, delayed retirement credit, cost-of-living adjustment, and the time preference and life expectancy of the individual.

Previous work showed that the removal of the earnings test in 2000 did lead to increased earnings by workers, especially those individuals whose earnings were close to the threshold at which the earnings test kicked in (Song and Manchester 2007). It also caused accelerated benefit claiming by workers at or above the FRA, perhaps because they had previously viewed the earnings test as a tax on earnings. The results in this paper suggest another avenue by which the removal of the earnings test affected labor supply. Among married couples in which both spouses had already claimed Social Security benefits and the wife received spousal benefits, wives responded to increased earnings by their husbands by working a bit more themselves.

3. Empirical Strategy

Husbands and wives may make joint decisions about earnings patterns over time. Indeed, they may choose a spouse based in part on attitudes toward earnings behavior. In this paper, we are interested in how the earnings of the wife respond to a shock to the husband's earnings:

(1) $$y_{wi} = \alpha + \beta y_{hi} + e_i,$$

where y_{wi} and y_{hi} are the (logged) earnings of the wife and husband, respectively. The parameter of interest is β, representing the elasticity of the wife's earnings with respect to the husband's earnings. Since the OLS estimate will be biased, we use the removal of the retirement earnings test in 2000 as an exogenous source of variation in the earnings of husband and wife.[3]

[3] In theory, the same exercise could apply to the earnings of husbands who are spousal beneficiaries married to wives who are primary beneficiaries. However, the extremely small sample size prohibits precise estimation.

The 2000 retirement earnings test removal created incentives for Social Security beneficiaries (both retired worker and spousal beneficiaries) who have attained the FRA, but not for those who are younger than the FRA. However, the incentives can be transmitted to the other spouse depending on the age and beneficiary status of the spouse. To estimate the responsiveness of the wife's earnings to the earnings of the husband using the rule change, we first estimate the effects of the rule change on the earnings of husbands, and then estimate the effects of the rule change on the earnings of wives linked only through the change in the husbands' earnings. The effect that we are interested in here can be derived from the ratio of the two effects.

Consider married couples in which the husband is aged FRA-69 and receives retirement (primary worker) benefits, and the wife is aged 62-FRA* and receives spousal benefits.[4] In order to mitigate effects of changes in claiming behavior among husbands before and after the rule change, we include only those couples in which the husband claimed Social Security benefits prior to the FRA. Those married couples will form our treatment group. Prior to the 2000 earnings test removal, both husband and wife were subject to the earnings test, and the earnings of the husband could reduce the wife's benefits. Thus, the earnings of the wife were affected not only by the earnings test on her own earnings but also the test on her husband's earnings. After the removal of the test, only the wife is subject to the test. The earnings of the husband are likely to rise in response to the test removal.

The increase in the earnings of the husband would then affect the earnings of the wife through the income and substitution effects caused by the change in the husband's earnings. Changes in the wife's earnings after the removal would be sufficient to identify the effects of the test removal on the earnings of the wife (linked only through the earnings of the husband). The effects of the test removal on the earnings of wives can be estimated by a difference-in-difference method on the earnings of spousal beneficiary wives aged 62-FRA*. Similarly the effect of the rule change on the earnings of husbands can be easily identified through pre- and post- earnings of husbands aged FRA-69.[5]

While the effect of the rule change on the earnings of the husband are identifiable by using married couples with husbands aged FRA-69, the effects (linked through the earnings of husbands) on the earnings of the wife are only identifiable through beneficiary couples in which the husband is aged FRA-69 and the wife is a spousal beneficiary aged 62-FRA*. Consider married couples in which the husband is aged FRA-69 and receives retirement (primary worker) benefits, and the wife is also aged FRA-69 but receives spousal benefits. Here a difference-in-difference estimator for the husband's earnings can be easily obtained. Yet observed pre- and post- changes in the earnings of

[4] For the rest of this paper, FRA* indicates FRA minus one month. In practice, we exclude married couples in which the wife attains the FRA during the year because the earnings test for those who attain the FRA during the year is much more modest after the rule change in 2000 (see Table A).
[5] Note that the FRA was changing after 2000 as well, potentially causing changes in the sample of husbands and wives across the 1995-2006 period. The FRA increased to 65 and 2 months for individuals who turned 62 in 2000 and rose incrementally until it reached 66 for individuals who turned 62 in 2005.

the wife are in response to the earnings test on her own earnings as well as on her husband's earnings operating through the income and substitution effects. For this couple, then, we cannot assume that the program rule change had no effect on the wife's earnings other than by increasing the earnings of the husband.

To implement a difference-in-difference (DD) approach, we consider a control group of married couple beneficiaries in which the husband is aged 62-FRA* and receives primary worker benefits; the wife is also aged 62-FRA* and receives spousal benefits. We identify the effects of the program rule change on older husbands' (aged FRA-69) earnings by using younger husbands (aged 62-FRA*) as the control group. Then we identify the effects of the program rule change on wives' (aged 62-FRA*) earnings by using wife beneficiaries (aged 62-FRA*) married to primary worker husbands aged 62-FRA* as the control group. The difference-in-difference (DD) estimator of the effect of the earnings test change on the husband's earnings (y_h) is:

(2) $$(E[y_h^E \mid t >= 2000] - E[y_h^E \mid t < 2000]) - (E[y_h^C \mid t >= 2000] - E[y_h^C \mid t < 2000],$$

where E and C indicate a husband in the experimental group and control group respectively. Similarly, the DD estimator of the effect of the earnings test change on the wife's earnings is:

(3) $$(E[y_w^E \mid t >= 2000] - E[y_w^E \mid t < 2000]) - (E[y_w^C \mid t >= 2000] - E[y_w^C \mid t < 2000]).$$

Then the effect of the husband's earnings on the wife's earnings is the simple ratio of the two DD estimators.

The first DD estimator can also be obtained by regressing earnings of husbands on year dummies, a group dummy and interaction dummies:

(4) $$y_h = \alpha + bD_t + \gamma D_g + \delta S + \varepsilon,$$

where D_t is a dummy equal to 1 for the post removal period, D_g is a dummy equal to 1 for husbands in the treatment group and S is instrumented with the interaction D_t and D_g. Similarly, the second DD estimator can be obtained by regressing earnings of wives on year dummies, a group dummy to designate treatment or control group, and interaction dummies:

(5) $$y_w = \alpha' + b' D_t + \gamma' D_g + \delta' S + \varepsilon',$$

where D_t is a dummy equal to 1 for post removal period, D_g is a dummy equal to 1 for wives in the treatment group and S is instrumented with the interaction D_t and D_g. Then the Wald IV estimator is:

(6) $$\widehat{\beta} = \widehat{b}' / \widehat{b}.$$

Our empirical strategy relies on the following assumptions: 1) changes in earnings of husband beneficiaries aged FRA-69 who claimed benefits prior to the FRA sufficiently identify the effects of the rule changes on husbands' earnings; 2) changes in earnings of spousal beneficiaries aged 62-FRA* (married to those husbands aged FRA-69) sufficiently identify the effects of program rule changes on wives' earnings only through changes in the earnings of their husbands. The second assumption is critical in identifying the effect of the husband's earnings on the earnings of the wife. To the extent that wives ages 62-FRA* change their earnings in anticipation of not facing an earnings test once they reach the FRA, wives in both the treatment group married to older husbands and those in the control group married to similar-aged husbands will be affected in the same way. Hence that anticipatory effect will be washed out in the difference-in-difference approach.

4. Data

The data used in this study come from a number of 10 percent extracts of administrative data from the Social Security Administration. Those extracts include the 10 percent claim account number (CAN) extract of the Master Beneficiary Record (MBR), the 10 percent beneficiary own account number (BOAN) extract of the MBR, the matched 10 percent extract of the master earnings file, and the Numident master file of Social Security numbers.[6] The administrative data extracts contain the exact month and year of entitlement for Old-Age, Survivors, and Disability Insurance (OASDI) benefits, the type of benefits (primary or auxiliary), date of birth, date of death, individuals' annual earnings, and marriage information for spousal benefit claimants. The data can be matched easily across different files using identification numbers. The 10 percent samples are selected by a "stratified cluster design" based on certain serial digits of the Social Security number. They are generally considered to be random samples and contain a large number of observations that represent the population of people with valid Social Security numbers, including institutionalized individuals.

The Master Beneficiary Record extracts contain data related to the administration of the OASDI program, such as application and entitlement dates, benefit amounts, payment status, type of benefits, and demographic information. An MBR record is established whenever an individual's application for benefits is processed. The MBR has one record for each primary beneficiary (the worker on whose earnings the benefit entitlement exists). Each MBR record can contain more than one beneficiary when there is more than one beneficiary for the account number. For example, an account for a retired worker who has an entitled spouse would have two beneficiaries, one for the worker and one for the spouse. In this case, the MBR also provides identification numbers for both husband and wife as well as marriage information, such as marriage starting date, ending date (if any), and marriage type. Unfortunately, the MBR file provides no information on the spouse of the account number holder if spousal benefits have not been claimed.

The SSA Master Earnings File (MEF) is the primary repository of earnings data for the U.S. population. The file contains annual detail earnings taken directly from the W-2 since 1978. Unlike Social Security covered earnings, wages reported in the detail segment of the MEF are not top-coded. The Medicare taxable maximum was completely eliminated in 1993, and this rule change allows SSA to keep earnings from self-

[6] Currently married couples are included in the sample when the SSN of the wife or husband belongs to the 10 percent sample. Thus our sample is much larger than 10 percent but smaller than 20 percent of the spouse beneficiary sample. We include dual beneficiaries (benefits are based on own earnings as well as spousal benefits) as well as spouse-only beneficiaries.

employment (SE) without top coding starting from 1993. As noted earlier, the earnings test counts all wages from covered employment, including earnings from self-employment.

We first use the MBR extracts to identify currently married couples in which both spouses are Old-Age beneficiaries. We establish the following main samples for 1995-2006.

1) Treatment couples:
   a) The husband became a primary worker beneficiary prior to his FRA but has attained the FRA as of January 1st of each reference year (aged FRA-69).
   b) The wife is a spousal beneficiary and has attained age 62 as of January 1st of each reference year (aged 62-FRA*, that is, 62 to FRA minus one month).
2) Control couples:
   a) The husband is a primary worker beneficiary and has not attained the FRA as of January 1st of each reference year (aged 62-FRA*).
   b) The wife is a spousal beneficiary and has not attained the FRA as of January 1st of each reference year (aged 62-FRA).

We then obtain matched annual earnings records for both husband and wife from 1995 to 2006. Note that we exclude married couple beneficiaries in which the wife attains the FRA during the year to avoid problems caused by the 2000 earnings test change in the year in which an individual attains the FRA. We also exclude couples in which the husband claimed benefits at or after the FRA to mitigate changing the characteristics of husbands pre- and post-removal of the earnings test. Song and Manchester (2007) show that many high-earning men who had not become beneficiaries prior to the FRA claimed benefits at the FRA once the earnings test was removed.

5. Descriptive results on changes in earnings in response to the program rule change

We begin by illustrating how exposure to the program rule change varies for wage-earning beneficiary couples in our treatment and control groups. Taking advantage of many years of available data both before and after the program rule change, we plot mean annual earnings for husbands and wives in 1995-2006, in 2005 dollars. The idea is to check visually whether trends are relatively parallel and whether any noticeable change occurs in the treatment group just after the reform.

In Figure 1, we report mean annual earnings of husbands and wives in our treatment group, that is, beneficiary couples with at least one earner in which the husband is aged FRA-69 and the wife is aged 62-FRA*. For these married couples, we expect to see responses in the earnings of the husband but not in the earnings of the wife because she is not affected directly by the removal. As expected, the table clearly shows a significant response in the earnings of husbands following the removal of the earnings test in 2000. It is not surprising to see little or no response in 2000 because the law was enacted in April of that year. Mean earnings of husbands in 1999 were about $11,000, and they almost doubled to $20,000 by 2006. It is important to note that earnings were nearly constant during the pre-removal period before increasing substantially in the years following the earnings test removal. As shown in Song and Manchester (2007), the increase largely can be attributed to workers with substantial earnings who remain in the work force at the FRA and beyond. Such behavior continues to build gradually in the years following the elimination of the earnings test at older ages.

Since younger spousal beneficiaries (wives) remain subject to the earnings test, albeit with slightly higher thresholds (see Table A), we expect that wives' earnings would be relatively unchanged following the removal. As expected, changes in the earnings of wives are relatively small. Interestingly, the figure clearly shows that the earnings of wives did increase following the earnings test removal. We interpret at least part of the observed response in the earnings of wives as the indirect effect of the program rule change coming through the earnings of husbands. Since wives face the earnings test both before and after 2000, observed changes in earnings after the removal can be attributed to increases in the earnings of husbands.

To confirm that our identification strategy is appropriate, we would expect to see no sudden change in earnings after the 2000 rule change for wives aged 62-FRA* who are married to husbands aged 62-FRA*. In Figure 2, we report the mean annual earnings of beneficiaries in married couples in our control group: husbands aged 62-FRA* and wives aged 62-FRA*. Results show that the earnings of husbands and wives tend to increase a bit over the study period but without any distinctive change after 2000 such as was seen in the earnings of couples in the experimental group. The earnings of husbands stay in the range $9,500-$11,000 in all years from 1995 to 2006. If some underlying factors had affected the earnings of wives in the experimental group during the post-removal period, we should be able to see similar responses among wives in the control group. The pattern of earnings among wives in our control group suggests that they did increase a bit following the removal of the test. However, the pattern seems to be less pronounced and smaller in magnitude than among wives in the treatment group, indicating that observed changes in the control group may have been caused by gradual increases in the earnings test threshold. Results here suggest that in the absence of the rule change in 2000, the observed increases in the outcome variable for those aged 62-FRA* in the treatment group would not have occurred to the same extent.

Characteristics of beneficiary couples, husbands, and wives in the experimental and control groups appear in Tables 1 through 3. Highlights of Table 1 include the following. First, the average primary insurance amounts of the treatment group seem to be a bit lower than those of the control group, probably because primary workers in the treatment group are a bit older. Second, the percentage of working couples, in which both spouses have earnings, has increased continuously since 1995 and at a slightly faster rate among the treatment group. Third, for the treatment group, the percentage of couples in which only the husband works increased following the earnings test removal in 2000, from 25 to 27 percent in 1996-99 to 30 to 31 percent in 2003-06. Finally, among the control group, the percentage of couples in which only the husband works remained stable at 30 to 31 percent in all years from 1995 to 2006.

As expected, characteristics of husbands in the treatment and control groups are a bit different largely because of the age difference (Table 2). However, characteristics of wives in the two groups seem to be quite similar (Table 3): the average age is approximately 63.3 to 64.1 and gradually increases starting in 2000 because of the increase in the FRA. Approximately 12 to 19 percent of wives in the sample are wage earners. Among the sample of working wives, employment in the service industry appears to be the most popular, followed by work in the wholesale and retail sector and in the public sector. In results not shown here, we find only small responses in SE earnings. We would expect to see more dramatic responses in SE earnings than in non-SE wages if the earnings response to the rule change was due largely to changes in wage-reporting behavior rather than changes in work hours. Our results suggest no evidence of such an outcome.

Patterns of work experience vary across husbands and wives. On average, spousal beneficiaries have low earnings, in the range $6000 to $7000, and only 12 to 19 percent of them participate in the work force during ages 62-FRA*. The work participation rate for wives in the control group shows a small but gradual increase over the study period. Average earnings for husbands in the control group tend to be around $8,000, but average earnings for husbands in the treatment group rise from $10,000 to almost $19,000 by 2006. Work participation rates for husbands aged FRA-69 rise from 36 percent in 1997-1999 to 41 percent in 2005-2006. Participation rates for husbands in the control group show a small increase during the pre-removal period but stay relatively flat after the removal of the earnings test.

6. Effects on the earnings of husbands

The earnings of husbands aged 62-FRA* and FRA-69 are nearly flat from 1995 to 1999, but the earnings of husbands aged FRA-69 increased noticeably starting in 2001 (see Figures 1 and 2). Such evidence lends credence to our identification strategy. We estimate the effect on the earnings of husbands aged FRA-69 by using husbands aged 62-FRA* as a control group. In Table 4, we examine the effects by assessing the deviation of annual logged earnings in 2001-2006 from the mean logged earnings of 1995-1999. We then report corresponding Wald instrumental variables (IV) estimates in Table 5.

Results calculated from pre- and post-removal mean differentials indicate that the earnings test removal increased the earnings of husbands 16 to 49 percent in 2001-2006 relative to earnings in 1995-1999 (see Table 4). Those estimates are larger than other estimates reported in the area of study. However, the results appear to be plausible because our estimates are based on primary worker beneficiaries only. Increasing effects over the years also seem plausible as more and more high-wage-earning men remain in the labor force. The DD estimates obtained from regression equation (4) after including a few covariates suggest that annual earnings of beneficiary husbands have risen 17 to 39 percent in 2001-2006 relative to earnings in 1995-1999 (see Table 5).[7] The regression includes dummies for year, group, SE workers, regions of residence, and industry group. It also controls for age, entitlement age, and PIA as a lifetime earnings measure. We report two sets of estimates: one set estimated from the sample of couples having at least one earner and the other set from the sample of couples in which both spouses have

[7] Note that the dependent variable here is logged annual earnings.

earnings. Estimates from working couples, showing increases of 17 to 32 percent in earnings for the husbands, are a bit smaller than those estimated from the couples in which at least one spouse has earnings. We speculate below that in couples where both spouses work, a joint decision is made that both spouses will respond to the decline in the husband's perceived marginal tax rate by working a bit more.

The reliability of these estimates depends on two assumptions. First, no contemporaneous shock occurs to the earnings of husbands and wives other than the change in the earnings test. Second, any change in earnings in the absence of the rule change would be the same for the husband and wife. To test the assumptions in our case, we use data for the pre-removal period 1995-1999 and estimate effects assuming that the policy change took place during that earlier period. We expect to find the placebo estimate close to zero if our identification assumption is reliable. We report the results of the test in Table 6. The placebo estimates are close to zero and statistically insignificant for all years, suggesting general support for our identification strategy.

7. Effects on the earnings of wives

The key here is to estimate the effects on the wife's earnings linked to the policy change only through the response to her husband's earnings. We examine earnings of spousal beneficiary women aged 62-FRA* who are married to husbands who claimed benefits prior to the FRA but are observed when aged FRA-69 and affected by the rule change. Spousal beneficiary women aged 62-FRA* married to husband beneficiaries aged 62-FRA* are the control group. In Table 4, we derive the estimates by calculating the deviation of annual logged earnings in 2001-2006 from the annual logged earnings in 1995-1999. We report corresponding Wald IV estimates in Table 7.

Results calculated from pre- and post-removal mean differentials indicate that the earnings test removal increased the earnings of wives in the age group 62-FRA* by 0 to 5 percent in 2001-2006 relative to earnings in 1995-1999 (Table 4). For purposes of illustration, we introduce a new sample consisting of wives aged FRA-69 married to husbands also aged FRA-69 to investigate the direct effect of removing the earnings test. The younger wives exhibit smaller mean differential effects than the "total" mean differential effects of the rule change on earnings of older wives. Total effects for older wives, including the direct effect of the rule change on the earnings of wives, are estimated to be 8 to 15 percent in 2001-2006 (Table 8), and net effects are 2 to 11 percent. These results suggest that spousal beneficiaries also responded to the removal of the earnings test, but the magnitude of the response is much smaller than that of husbands who are primary workers. That response was previously reported as 17 to 39 percent (Table 4). Further, the direct effect of the rule change for older wives appears to be much larger than the indirect impact on younger wives that occurs through changes in the earnings of their husbands.

In Table 7, we report estimates obtained from regression equation (4) after controlling for the covariates described above. The results suggest that annual earnings of beneficiary wives in couples in which at least one spouse works rose 3 to 9 percent in 2001-2005 relative to earnings in 1995-1999. Estimated effects among working couples are a bit smaller, 1 to 5 percent. Once again, the reliability of these estimates relies on the assumptions that there is no contemporaneous shock to the earnings of wives other than the 2000 earnings test change and that any change in earnings in the absence of the rule change would be the same for the husband and wife. To test the assumptions in our case, we use data for the pre-removal period (1995-1999) and estimate the effects assuming the policy change occurred during the earlier period. Again we expect to see the placebo estimate close to zero if our identification assumption is reliable. We report the results of this test in Table 9. The placebo estimates are close to zero and statistically insignificant for all years, suggesting general support for our identification strategy.[8]

8. Effects of husbands' earnings on earnings of wives

We estimated the effects of exogenous variation in wages of husbands and wives coming from the 2000 earnings test removal by assuming that the change in earnings of husbands and wives from the pre-removal period to the post-removal period across different groups would be the same in the absence of the rule change. We further assume that the rule change affected the wife's earnings only through her husband's earnings. Doing so allows us to identify the effect of the husband's earnings on the wife's earnings by taking the ratio of the two estimates. Our estimated elasticity of the wife's earnings with respect to the husband's earnings is in the range of 19 to 29 percent among beneficiary couples with at least one wage earner and is about 8 to 19 percent among wage earner couples (Table 10).

The biggest concern regarding our approach is that the removal of the earnings test could have affected the earnings of wives in the treatment group directly as well as indirectly through the earnings of their husbands. The earnings test that applies to both worker beneficiaries and spousal beneficiaries aged 62 to the year before they attain the FRA has not changed substantively over the time period studied here, 1995-2006. In current dollars, the earnings test threshold rose from $8,160 in 1995 to $12,480 in 2006.

It is possible, however, that spousal beneficiary wives in the years prior to reaching the FRA would look forward to the day when their earnings would not be subject to the earnings test. Anticipating the absence of the earnings test once they reach the FRA could induce them to stay in career jobs or stay in the labor force to some extent even though they remain subject to the earnings test until then. One could argue that such behavior would reflect the direct effect of the removal of the earnings test at older ages on labor force decisions of younger spouses. Yet spousal beneficiaries in both the treatment and control groups would be affected in the same way by that direct effect of the removal of the earnings test at older ages. Hence the difference-in-difference approach removes the anticipatory effects from the earnings of spouses in both the treatment and control groups.

9. Further results on the income and substitution effects

[8] Again, changes in claiming behavior as the FRA increased during the post-removal period could modestly affect our results.

Our IV method yields an estimate of the average effect for beneficiary couples whose earnings were affected by the 2000 rule change. If the treatment effects are heterogeneous across the population, the estimates will vary with the samples used to estimate the effects. Analysis based on the simple static budget constraint (see, for example, Burtless and Moffitt 1985) predicts that the effects of the earnings test on earnings are not expected to be the same for all individuals. Under the earnings test, the marginal tax rate is zero for non-beneficiaries or those who earn below the test threshold and 33 percent for beneficiaries who earn above the threshold until all benefits are withheld. Since the reduction in the marginal tax rate depends on earnings levels, the effects of the removal on the earnings of husbands will vary by earnings level. How the wife's earnings responds to changes in her husband's earnings would also vary by earnings level. In this section we investigate how the income and substitution effects affect the husband's own earnings as well as his wife's earnings by estimating equations (4) and (5) for subsamples defined by the husband's earnings level. We first estimate the effect on the husband's earnings using samples in which the husband's earnings are above $1,000, $2,000, and so on (by $1,000 intervals). We then estimate effects on the wife's earnings using corresponding samples. We estimate effects for husbands and wives using 90 samples each and plot the resulting estimates in Figures 3 and 4.

Among couples in the treatment group in which the husband has earnings, we find the following estimated effects on the earnings of husbands. First, as we increase the lower limit of earnings for workers included in the regression sample, the magnitude of the estimates tends to rise a bit and then gradually declines (see Figure 3). Second, a small but noticeable hump occurs for the sample with earnings limits around $12,000-$15,000 (in 2005 dollars), corresponding to the test threshold amounts prior to the removal. Third, although estimated effects get smaller from 2001 to 2006, the pattern of variation over the samples with different earnings cut-offs is similar. Overall earnings responses to the rule change are larger among low-wage workers and relatively smaller among higher wage workers. Using cut-offs above $60,000 yields responses close to zero, perhaps because the income effect dominates the substitution effect for those households with relatively high earnings. Those households received a windfall when the earnings test was removed. They are able to share increased leisure time together.

Among couples in the treatment group in which both spouses have earnings, we find small effects on the wife's earnings when the husband has low earnings. The response for those wives appears to be close to zero or negative (see Figure 4). Many of those wives are subject to their own earnings test if they earn more than about $12,000. The response among wives with higher earning husbands ($70,000 or higher) appears to be modest in size, in the range of 5 to 25 percent. Wives in households with husbands with earnings in the middle range may be responding to the substitution effect as the tax rate on additional household earnings falls. Those wives may want to share increased work effort with their husbands if husbands and wives enjoy leisure time together. Again, households with high-earning husbands may be responding to the income effect arising from the removal of the earnings test. Wives in those households have less incentive to earn more given the income windfall that accrues to their household.

Older husbands and wives respond in diverse ways to the incentive generated by the 2000 earning test removal. Our results here have some notable implications for the effects of the test removal on the earnings inequality of older workers. First, declining effects as the minimum threshold rises suggest that earnings inequality for working husband beneficiaries has improved following the removal of the 2000 earnings test. Second, effects on earnings of husbands along the earnings spectrum appear to be partly offset by the response among wives.

As further evidence that couples tend to share changes in leisure time, we examine claiming behavior among couples in our sample with different age differentials. At the time that the husband claims benefits, the wife has either reached age 62 (the early retirement age, or ERA) or has not reached the ERA. For those wives who have reached the ERA, we expect to see a majority of them claim benefits in the same month as the husband if the couple wants to share changes in leisure time. For wives who have not reached the ERA, on the other hand, we expect to see a majority claim as soon as they reach the ERA. We consider three groups of married couples: couples in the treatment group, couples in the control group, and couples in which both husband and wife are aged FRA-69. We report the percentage of wives who claim benefits at the ERA or in the same month as the husband in Table 11. Results clearly suggest that the shared leisure effects are important to the decision about when to claim benefits for these couples. Among wives who have attained the ERA by the time their husbands claim benefits, more than 75 percent of them claim benefits in the same month as their husbands. Among wives who have not attained the ERA by the time their husbands claim benefits, nearly 90 percent or more claim benefits as soon as they attain the ERA. Interestingly, the percentage of wives who claim at the ERA has decreased noticeably in 2003-2006. We speculate that the decline in the percentage of wives who claim at the ERA is attributable to the gradual increase in the FRA for those who were born in 1938 or later.

10. Concluding remarks

The earnings test removal in 2000 created exogenous variation in exposure to the rule change for Social Security beneficiary couples. The degree of exposure depends on both the age of the beneficiary and the calendar year. We exploit this variation to identify the effects of the program rule change on the earnings of husbands and wives. We find that earnings of wives who are spousal beneficiaries generally respond positively but modestly to an exogenous increase in their husband’s earnings. Those responses may vary across earnings levels, however, because spousal beneficiaries aged 62 to just below the full retirement age remain subject to their own earnings test. Small but positive elasticities suggest that couples may want to share changes in leisure time, and we present evidence on the timing of entitlement ages to support that suggestion.

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Table 1: Characteristics of beneficiary couples in the treatment and control groups

	1995	1997	1999	2001	2003	2005	2006
Couples in the treatment group							
Number of couples	12,440	14,073	17,152	18,437	18,729	21,119	22,856
PIA	13,297	13,898	14,299	14,459	14,939	15,689	16,101
Family max	23,245	24,302	24,999	25,267	26,096	27,387	28,099
Working couples	0.065	0.089	0.095	0.096	0.097	0.102	0.102
Only husband works	0.249	0.268	0.267	0.282	0.297	0.312	0.312
Only wife works	0.052	0.071	0.078	0.078	0.078	0.078	0.078
Couples in the control group							
Number of couples	8,837	9,124	10,014	10,694	11,333	13,604	15,931
PIA	14,164	14,661	14,706	15,614	16,609	17,307	17,472
Family max	24,765	25,628	25,682	27,268	28,979	30,185	30,472
Working couples	0.095	0.104	0.108	0.108	0.105	0.109	0.111
Only husband works	0.296	0.311	0.310	0.309	0.307	0.312	0.311
Only wife works	0.065	0.069	0.072	0.073	0.076	0.079	0.079

Source: Authors' tabulations using SSA 10 percent MBR files and matched earnings data

Notes: The sample includes couples in which both spouses are entitled to Old-Age benefits by Jan. 1st of each reference year, and at least one spouse has earnings. In the treatment group, the husband claimed benefits prior to the FRA and is observed when aged FRA-69; the wife is aged 62-FRA*. In the control group, both husband and wife are aged 62-FRA*. The primary insurance amount (PIA) effective date is 12/2007. Working couples are defined as those in which both spouses have earnings. Dollar amounts are in thousands of 2005 dollars. DI conversions are not included.

Table 2: Characteristics of husbands in the treatment and control groups

	1995	1997	1999	2001	2003	2005	2006
Husbands in the treatment group							
Age	66.75	66.64	66.85	66.90	67.03	67.26	67.41
Benefit claim age	62.82	62.80	62.71	62.73	62.80	62.90	62.96
SE workers	0.106	0.102	0.096	0.099	0.104	0.110	0.107
Wage earners, non-SE	0.228	0.276	0.287	0.302	0.316	0.332	0.335
Wage earners, incl. SE	0.315	0.357	0.362	0.378	0.394	0.414	0.414
Mean wage, non-SE	10,147	10,314	10,554	13,046	17,707	18,761	18,670
Mean wage, incl. SE	8,889	9,299	8,682	10,517	11,902	14,331	14,082
Industry group							
Agriculture, Fishery	0.0033	0.0038	0.0048	0.0048	0.0057	0.0047	0.0044
Construction	0.0145	0.0177	0.0170	0.0185	0.0184	0.0198	0.0188
Manufacturing	0.0609	0.0759	0.0757	0.0793	0.0776	0.0817	0.0822
Wholesale and retail	0.0573	0.0719	0.0762	0.0697	0.0708	0.0699	0.0685
Services	0.0615	0.0758	0.0811	0.0844	0.0864	0.0905	0.0894
Public sector	0.0254	0.0278	0.0320	0.0445	0.0562	0.0636	0.0647
Husbands in the control group							
Age	63.81	63.83	63.81	63.81	63.90	64.03	64.14
Benefit claim age	62.29	62.28	62.28	62.29	62.30	62.34	62.37
SE workers	0.104	0.102	0.104	0.103	0.100	0.099	0.095
Wage earners, non-SE	0.310	0.338	0.339	0.340	0.338	0.347	0.351
Wage earners, incl. SE	0.391	0.415	0.418	0.416	0.413	0.421	0.421
Mean wage, non-SE	8,889	9,657	9,732	11,105	10,281	10,331	10,177
Mean wage, incl. SE	8,085	7,348	8,273	8,750	7,975	8,828	8,563
Industry group							
Agriculture, Fishery	0.003	0.004	0.005	0.005	0.005	0.004	0.004
Construction	0.021	0.022	0.022	0.021	0.017	0.018	0.017
Manufacturing	0.102	0.104	0.098	0.097	0.095	0.096	0.098
Wholesale and retail	0.070	0.082	0.084	0.074	0.071	0.068	0.067
Services	0.080	0.090	0.095	0.093	0.088	0.089	0.089
Public sector	0.028	0.031	0.035	0.051	0.063	0.069	0.069

Source: Authors' tabulations using SSA 10 percent MBR files and matched earnings data

Notes: The sample includes couples in which both spouses are entitled to Old-Age benefits by Jan. 1st of each reference year, and at least one spouse has earnings. In the treatment group, the husband claimed benefits prior to the FRA and is observed when aged FRA-69; the wife is aged 62-FRA*. In the control group, both husband and wife are aged 62-FRA*. The primary insurance amount (PIA) effective date is 12/2007. Working couples are defined as those in which both spouses have earnings. Dollar amounts are in thousands of 2005 dollars. DI conversions are not included. Mean wages are calculated based on workers with positive earnings.

Table 3: Characteristics of wives in the treatment and control groups

	1995	1997	1999	2001	2003	2005	2006
Wives in the treatment group							
Age	63.68	63.76	63.70	63.73	63.84	64.01	64.13
Benefit claim age	62.19	62.19	62.20	62.28	62.30	62.35	62.40
SE workers	0.015	0.020	0.022	0.023	0.023	0.023	0.023
Wage earners, non-SE	0.097	0.134	0.145	0.148	0.149	0.151	0.151
Wage earners, incl. SE	0.120	0.162	0.174	0.176	0.177	0.180	0.180
Mean earnings, non-SE	6,663	6,872	6,977	7,173	7,445	7,397	7,445
Mean earnings, incl. SE	6,227	6,456	6,583	6,732	7,028	7,025	7,060
Industry group							
Agriculture, Fishery	0.001	0.002	0.003	0.002	0.003	0.002	0.002
Construction	0.003	0.003	0.004	0.004	0.004	0.003	0.003
Manufacturing	0.006	0.009	0.010	0.009	0.008	0.008	0.008
Wholesale and retail	0.027	0.038	0.041	0.038	0.036	0.035	0.034
Services	0.041	0.060	0.067	0.068	0.068	0.069	0.068
Public sector	0.015	0.019	0.020	0.026	0.030	0.032	0.032
Wives in the control group							
Age	63.33	63.35	63.36	63.36	63.42	63.47	63.55
Benefit claim age	62.38	62.37	62.38	62.38	62.38	62.41	62.43
SE workers	0.018	0.020	0.021	0.022	0.022	0.024	0.024
Wage earners, non-SE	0.134	0.147	0.151	0.152	0.153	0.157	0.159
Wage earners, incl. SE	0.160	0.174	0.180	0.181	0.181	0.188	0.190
Mean earnings, non-SE	6,622	6,647	6,659	7,049	7,020	7,028	7,104
Mean earnings, incl. SE	5,472	5,851	5,623	5,385	5,517	5,699	5,880
Industry group							
Agriculture, Fishery	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Construction	0.004	0.004	0.004	0.004	0.003	0.003	0.003
Manufacturing	0.010	0.010	0.010	0.009	0.009	0.009	0.009
Wholesale and retail	0.038	0.041	0.042	0.038	0.036	0.036	0.035
Services	0.059	0.068	0.071	0.070	0.069	0.072	0.072
Public sector	0.019	0.020	0.021	0.027	0.033	0.034	0.034

Source: Authors' tabulations using SSA 10 percent MBR files and matched earnings data

Notes: The sample includes couples in which both spouses are entitled to Old-Age benefits by Jan. 1st of each reference year, and at least one spouse has earnings. In the treatment group, the husband claimed benefits prior to the FRA and is observed when aged FRA-69; the wife is aged 62-FRA*. In the control group, both husband and wife are aged 62-FRA*. The primary insurance amount (PIA) effective date is 12/2007. Working couples are defined as those in which both spouses have earnings. Dollar amounts are in thousands of 2005 dollars. DI conversions are not included. Mean earnings are calculated based on workers with positive earnings.

Table 4: Difference-in-difference estimators

Effects of the rule change on the earnings of husbands and wives

	mean 1995-99	2001	2002	2003	2004	2005	2006
Treatment group							
Earnings of husbands, natural log	8.624						
Difference from the mean of 1995-99		0.498	0.572	0.633	0.686	0.702	0.687
Earnings of wives, natural log	8.239						
Difference from the mean of 1995-99		0.055	0.076	0.073	0.047	0.053	0.053
Control group							
Earnings of husbands, natural log	8.518						
Difference from the mean of 1995-99		0.334	0.259	0.269	0.254	0.240	0.198
Earnings of wives, natural log	8.231						
Difference from the mean of 1995-99		0.057	0.025	0.060	0.048	0.029	0.040
Effects on earnings of husbands		0.164	0.313	0.364	0.432	0.462	0.489
Effects on earnings of wives		-0.002	0.051	0.013	-0.001	0.024	0.013
Effects of husbands' earnings on the earnings of wives		-0.011	0.162	0.036	-0.003	0.053	0.026

Source: Authors' tabulations using SSA 10 percent MBR files and matched earnings data

Note: Earnings and differences are in natural logs. The sample includes couples in which both spouses are entitled to Old-Age benefits by Jan. 1st of each reference year, and at least one spouse has earnings. In the treatment group, the husband claimed benefits prior to the FRA and is observed when aged FRA-69; the wife is aged 62-FRA*. In the control group, both husband and wife are aged 62-FRA*. The primary insurance amount (PIA) effective date is 12/2007. Working couples are defined as those in which both spouses have earnings. Dollar amounts are in thousands of 2005 dollars. DI conversions are not included.

Table 5: Regression estimates, effects of earnings test removal on earnings of husbands, 2001-2006

	2001	2002	2003	2004	2005	2006
Couples having at least one wage earner						
Annual earnings	0.173	0.242	0.298	0.360	0.371	0.392
(standard error)	0.008	0.008	0.008	0.008	0.007	0.007
Both husband and wife are wage earners						
Annual earnings	0.167	0.225	0.271	0.313	0.320	0.311
(standard error)	0.014	0.014	0.014	0.014	0.013	0.013

Source: Authors' tabulations using SSA 10 percent MBR file and and matched earnings data

Note: Samples of married beneficiary couples include those who have attained the FRA or age 62 by January 1st of each reference year and are entitled to primary worker or spousal benefits as of January 1st of each reference year.

Table 6: Results of a placebo test, effects on earnings of husbands

	Estimate	Std. Error	T-ratio
Assuming the rule change took place in 1996			
Treatment dummy, 1996	-0.033	0.029	-1.147
Treatment dummy, 1997	-0.023	0.015	-1.501
Treatment dummy, 1998	0.010	0.015	0.668
Treatment dummy, 1999	-0.028	0.015	-1.836
Assuming the rule change took place in 1997			
Treatment dummy, 1997	-0.006	0.013	-0.467
Treatment dummy, 1998	0.027	0.016	1.719
Treatment dummy, 1999	-0.010	0.016	-0.672
Assuming the rule change took place in 1998			
Treatment dummy, 1998	0.030	0.017	1.738
Treatment dummy, 1999	-0.008	0.012	-0.709

Table 7: Regression estimates, effects of earnings test removal on earnings of wives, 2001-2006

	2001	2002	2003	2004	2005	2006
Couples having at least one wage earner						
Annual earnings	0.033	0.061	0.086	0.072	0.078	0.090
(standard error)	0.010	0.010	0.009	0.009	0.009	0.009
Both husband and wife are wage earners						
Annual earnings	0.013	0.044	0.048	0.026	0.035	0.041
(standard error)	0.012	0.012	0.012	0.012	0.012	0.012

Source: Authors' tabulations using SSA 10 percent MBR file and and matched earnings data

Note: Samples of married beneficiary couples include those who have attained the FRA or age 62 by January 1st of each reference year and are entitled to primary worker or spousal benefits as of January 1st of each reference year.

Table 8: Difference-in-difference estimators of the "total" effects of the rule change on the earnings of wives

	mean 1995-99	2001	2002	2003	2004	2005	2006
Treatment group (wife aged FRA-69, husband aged FRA-69)							
Earnings of wives, natural log	8.419						
Difference from the mean of 1995-99		0.082	0.099	0.137	0.123	0.153	0.138
Control group (wife aged 62-FRA*, husband aged FRA-69)							
Earnings of wives, natural log	8.215						
Difference from the mean of 1995-99		0.064	0.030	0.066	0.059	0.046	0.052
Net effects on earnings of treated wives		0.018	0.069	0.071	0.065	0.108	0.086

Source: Authors' tabulations using SSA 10 percent MBR files and matched earnings data.

Note: The sample includes couples in which the spousal beneficiary has earnings.

Earnings are expressed as natural logs.

Table 9: Results of a placebo test, effects on earnings of wives

	Estimate	Std. Error	T-ratio
Assuming the rule change took place in 1996			
Treatment dummy, 1996	-0.0910	0.0775	-1.17
Treatment dummy, 1997	0.0184	0.0757	0.24
Treatment dummy, 1998	-0.0459	0.0743	-0.62
Treatment dummy, 1999	0.0255	0.0729	0.35
Assuming the rule change took place in 1997			
Treatment dummy, 1997	0.0671	0.0633	1.06
Treatment dummy, 1998	0.0029	0.0616	0.05
Treatment dummy, 1999	0.0742	0.0599	1.24
Assuming the rule change took place in 1998			
Treatment dummy, 1998	-0.0222	0.0569	-0.39
Treatment dummy, 1999	0.0492	0.0550	0.89

Table 10: Estimates of the elasticity of the wife's earnings with respect to the husband's earnings

	2001	2002	2003	2004	2005	2006
Couples having at least one wage earner						
Elasticity of wife's earnings with respect to husband's	0.190	0.252	0.288	0.200	0.210	0.231
Both husband and wife are wage earners						
Elasticity of wife's earnings with respect to husband's	0.080	0.194	0.177	0.083	0.109	0.131

Source: Authors' tabulations using SSA 10 percent MBR file and matched earnings data

Note: Samples of married beneficiary couples include those who have attained the FRA or age 62 by January 1st of each reference year and are entitled to primary worker or spousal benefits as of January 1st of each reference year.

Table 11: Claiming age for spousal benefits

	1995	1997	1999	2001	2003	2005
Group 1: wife aged 62-FRA* and husband aged FRA-69						
wife had reached the ERA when husband claimed	1,166	1,289	1,414	1,805	2,021	2,583
% who claimed at ERA	15.9	17.3	16.4	15.4	14.4	13.4
% who claimed in same month as husband	78.0	77.4	78.4	79.0	79.6	78.7
wife not reached the ERA when husband claimed	11,274	12,784	15,738	16,633	16,708	18,536
% who claimed at ERA	93.4	93.2	91.9	91.2	89.2	86.1
Group 2: wife aged 62-FRA* and husband aged 62-FRA*						
wife had reached the ERA when husband claimed	3,793	4,017	4,556	4,919	5,132	6,024
% who claimed at ERA	16.2	16.9	16.9	17.1	16.9	15.9
% who claimed in same month as husband	81.5	81.1	80.9	80.6	80.6	80.7
wife not reached the ERA when husband claimed	5,044	5,107	5,457	5,775	6,201	7,580
% who claimed at ERA	96.3	96.4	95.9	95.5	94.3	93.8
Group 3: wife aged FRA-69 and husband aged FRA-69						
wife had reached the ERA when husband claimed	4,894	11,065	15,416	18,752	24,668	29,289
% who claimed at ERA	5.0	6.6	7.8	7.8	6.3	5.9
% who claimed in same month as husband	79.7	82.4	82.5	81.9	81.0	79.6
wife not reached the ERA when husband claimed	8,824	12,244	16,762	19,168	19,728	20,254
% who claimed at ERA	89.0	88.3	85.8	83.3	81.6	79.1

Source: Authors' tabulations using SSA 10 percent MBR files and matched earnings data

Note: The sample consists of couples in which both spouses are Old-Age beneficiaries; the husband receives primary worker benefits and the wife receives spousal benefits.

Table A: Earnings test exempt amount, 1990-2009

Prior to the 2000 removal			***After the 2000 removal***		
Year	age 62-64	age 65-69	Year	years before attaining the FRA	year of attaining the FRA
1990	6,840	9,360	2000	$10,080	$17,000
1991	7,080	9,720	2001	10,680	25,000
1992	7,440	10,200	2002	11,280	30,000
1993	7,680	10,560	2003	11,520	30,720
1994	8,040	11,160	2004	11,640	31,080
1995	8,160	11,280	2005	12,000	31,800
1996	8,280	12,500	2006	12,480	33,240
1997	8,640	13,500	2007	12,960	34,440
1998	9,120	14,500	2008	13,560	36,120
1999	9,600	15,500	2009	14,160	37,680

Note: All quantities are expressed in current dollars.

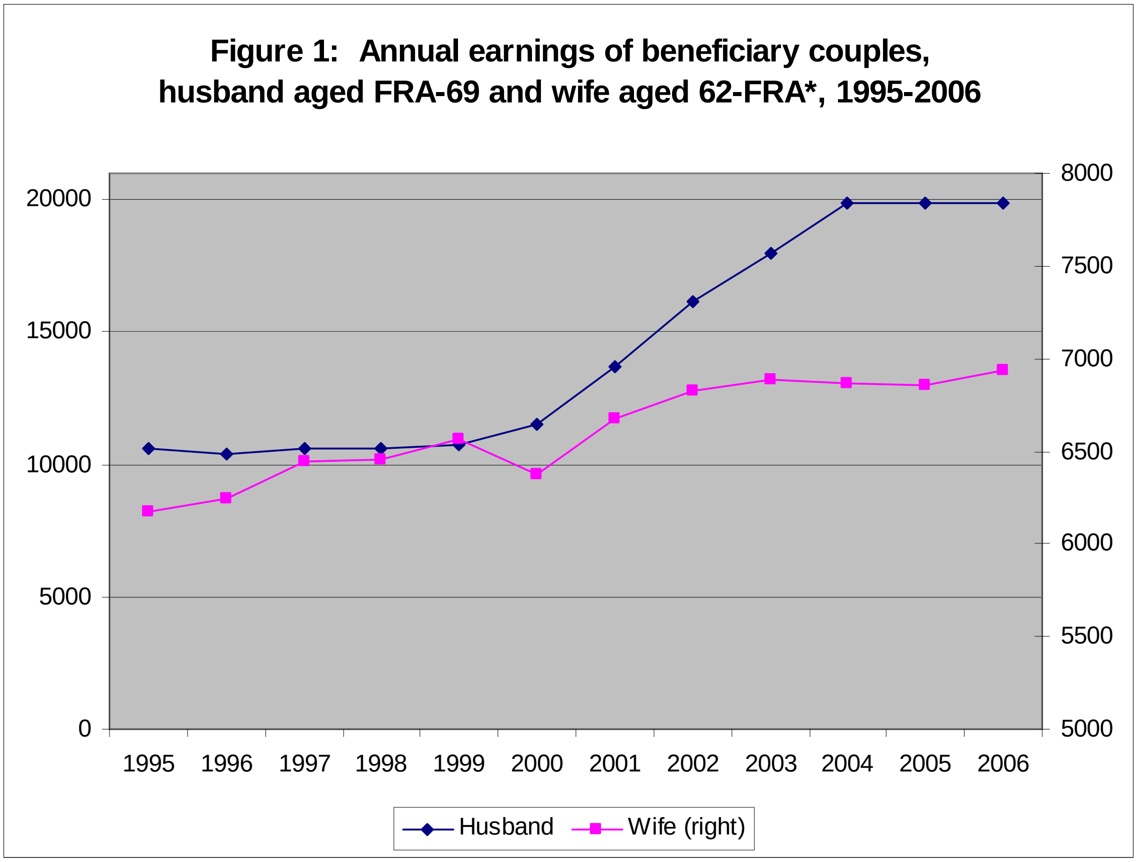
Figure 1: Annual earnings of beneficiary couples,
husband aged FRA-69 and wife aged 62-FRA*, 1995-2006
20000
15000
10000
5000
0
8000
7500
7000
6500
6000
5500
5000
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Husband
Wife (right)

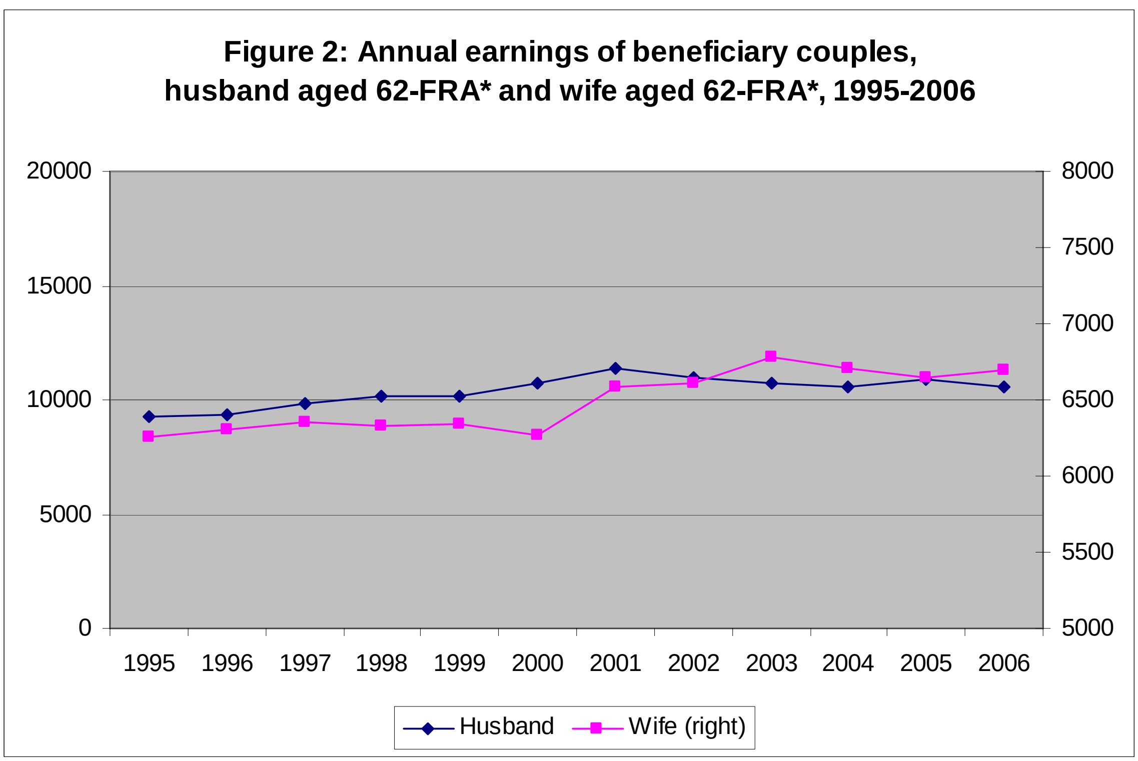
Figure 2: Annual earnings of beneficiary couples,
husband aged 62-FRA* and wife aged 62-FRA*, 1995-2006
20000
15000
10000
5000
0
8000
7500
7000
6500
6000
5500
5000
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Husband
Wife (right)

Figure 3: Change in Earnings of Husbands in the Treatment Group Following the Removal of the Earnings Test, in percent

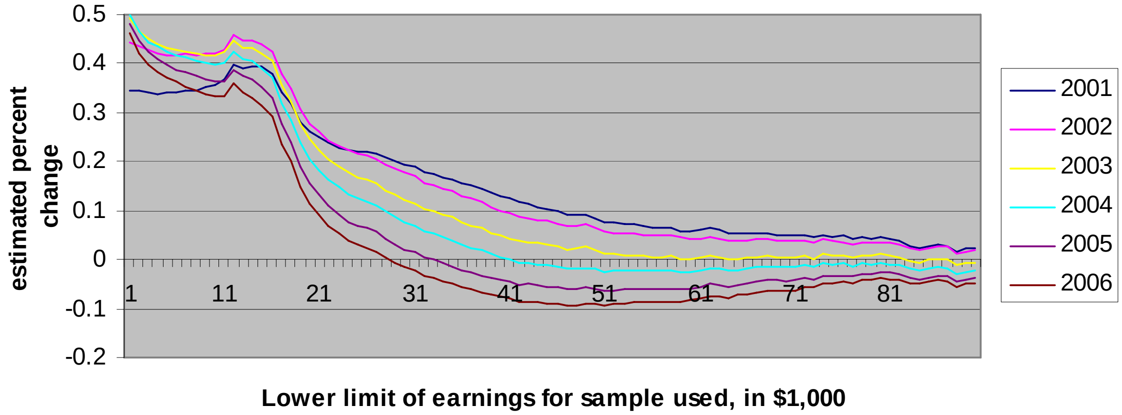

Figure 4: Change in Earnings of Wives in the Treatment Group Following the Removal of the Earnings Test, in percent