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Health Insurance and the Labor Supply Decisions of Older Workers: Evidence from the U.S. Department of Veterans Affairs

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Abstract

Although government expansion of health insurance to older workers leads to labor supply reductions for recipients, there may be spillover effects on the labor supply of affected spouses who are not covered by the programs.   In the simplest model, health insurance on the job is paid for in terms of lower compensation on the job.   Receiving health insurance exogenous to employment is akin to a positive income shock for the household, causing total household labor supply to drop.   However, it is not clear within the household whether this decrease in labor supply will be borne by both spouses or by a specific spouse.   We use a mid-1990s expansion of health insurance for U.S. veterans to provide evidence on the effects of expanding health insurance availability on the labor supply of spouses.   Using data from the Current Population Survey, we employ a difference-in-differences strategy to compare the labor market behavior of the wives of older male veterans and non-veterans before and after the VA health benefits expansion to test the impact of public health insurance on these spouses.   Our findings suggest that although household labor supply may decrease because of the income effect, the more flexible labor supply of wives allows the wife's labor supply to increase, particularly for those with lower education levels.

JEL Classification Codes: I11, I18, H51, J26

Keywords: labor supply, spousal employment, retirement, health insurance, Medicare, veteran

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I.   Introduction

As access to public health insurance increases, it is important to consider the impact of publicly-provided care on household labor. For workers approaching the age of retirement, it is particularly important to consider how public insurance expansions will alter the retirement and work decisions of the household. From previous work (Boyle and Lahey 2010), we know that for men between the ages of 55 and 64, the probability of leaving the labor force increases 3.33% upon receipt of government-provided health insurance. However, although government expansion of health insurance to older workers decreases labor supply for those workers, there may be positive or negative spillover effects on the labor supply of affected spouses who are not covered by the programs.

The effect of publicly-provided healthcare receipt on a spouse's labor supply is not theoretically clear cut. There are several factors that are important to consider. In theory, household labor supply should decrease with the effective income shock from publicly-provided health insurance, but that labor supply reduction may not be borne equally by all members of the household. Because older wives generally have more flexible work options than their husbands, they may increase their work hours or enter the labor force part time once their husbands drop out of the labor force. If a husband's job has provided health insurance for his wife and he is offered public health insurance for himself, it may make sense for the wife to seek or retain employment options that allow her to

acquire her own employer-provided insurance, such as by increasing her hours to full-time or obtaining a new job with health insurance coverage. On the other hand, husbands and wives may make joint retirement decisions, which would increase the attractiveness of reducing hours for wives (Coile 2004).

Previous research that has examined the effect of health insurance receipt on spousal labor supply has generally found negative effects of husbands' health insurance availability on wives' labor supply (Abraham and Royalty 2006, Buchmueller and Valletta 1999, Kapinos 2009, Murasko 2008, Olson 1998). However, this research focuses on the effect of health insurance availability that can cover the entire family and not just the plan participant. The theoretical implications of this type of policy change, similar to extending COBRA or providing universal healthcare, are different than for a policy which only covers one specific member of the household. In these previously studied cases, the wife will have less of an incentive to increase labor supply (even when her husband previously provided the family's health insurance) because she will not need to provide health insurance for the family. Additionally, this literature tends to focus on younger age groups, who may be more attached to the labor force than those ages 55 and older. Some of this literature also has problems with positive marriage selection—"high quality" husbands are more likely to have both health insurance and "high quality" wives with their own labor force attachment. However, the main findings still hold even when this endogeneity is corrected for

in more recent work (Kapinos 2009). A related literature finds that when SCHIP or Medicaid becomes available to children, women reduce their labor supply. However, this type of health insurance directly disincentivizes work through eligibility requirements (e.g. Montgomery and Navin 2000, Tomohara and Lee 2007, Winkler 1991, Yelowitz 1995).

In contrast, we examine the effect of a health benefits increase that is not linked to work and only covers the individual affected, not the entire family. We use a mid-1990s expansion of health insurance for U.S. veterans to provide evidence on the effects of expanding health insurance availability on the labor supply of wives of affected veterans. Using data from the Current Population Survey, we employ a difference-in-differences strategy to compare the labor market behavior of the wives of older veterans and non-veterans before and after the VA health benefits expansion to test the impact of public health insurance on these spouses. This experiment models the potential impact on women's labor supply if the husband reaches the age of Medicare eligibility earlier than his wife. Because wives in these cohorts are generally younger than their husbands, a husband's acquisition of VA coverage creates a situation analogous to a household in which the husband reaches the age of Medicare eligibility before his wife does.

Our findings suggest that although household labor supply may decrease because of the income effect, the more flexible labor supply of wives allows the wife's labor supply to increase. This effect appears to dominate the propensity for a wife to retire at the same time as her husband (which would imply a decrease in work on the extensive margin). This outcome is stronger for wives with high school education or less who are more likely than more educated women to seek occupations with flexible work hours. When husbands obtain health insurance independent of their jobs, wives with lower levels of education are more likely to enter the labor force. Although women with more education do not significantly increase their propensity to work on the extensive margin, they increase their earnings and hours worked, suggesting an increase on the intensive margin.

The organization of the paper is as follows. Section II describes the VA program. Section III gives a brief overview of the theoretical framework and the data. Section IV provides results. Section V discusses and concludes.

II.   Description of VA Program

The Department of Veterans Affairs (VA) health care system was established in the 1930s to treat veterans with conditions resulting from their military service, and later, low-income veterans. Prior to the time period we study, VA primarily provided inpatient care, and limited the availability of

outpatient care for non-service-connected conditions to follow-up visits after an inpatient stay.[1]

The U.S. government began a major overhaul of this health care system in the mid-1990s. The impetus was an effort to catch up with progress in technology and efficiency in private-sector medicine. During this time, VA health care restructured to become a comprehensive health care system that focused on primary care and preventive medicine rather than hospital-based specialty services. Following this change, VA experienced a 44 percent decline in the number of inpatients and a 66 percent increase in the total number of outpatient visits (Klein and Stockford 2001). At the same time, VA also changed its resource allocation system by distributing its health care budget using a capitated, patient-based formula, similar to the HMO model.[2] VA expected that these changes would result in significant cost reductions. Based on this assumption, it relaxed its rules on eligibility for care and offered services to all veterans rather than limiting guaranteed access to low-income and service-connected disabled veterans (GAO 1999).

Veterans were required to fill out paperwork enrolling in the VA program before they could use health care services. However, it is important to note that

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[1] For additional detail on VA health care and the associated reforms, see Boyle (2009).
[2] In a capitated payment system, the health care provider is reimbursed a flat dollar amount for each patient regardless of the services provided.

veterans could enroll without utilizing VA health care, but enrollment guaranteed the ability to use VA services in the future. Additionally, during the time period of our study, not enrolling did not imply that veterans would not be able to fill out paperwork and enroll in the future should they need VA services. In that respect, VA functioned as insurance for veterans even in the absence of enrollment, similar to the way that COBRA serves as insurance for the first 60 days after job separation regardless of whether the job leaver chooses to pay a premium. Nevertheless, 6.6 million veterans had enrolled by 2002 and VA's patient load had increased from 2.6 million veterans in 1995 to 4.3 million in 2002 (GAO 1996, GAO 2003).[3]

During our study period, enrolled veterans were sorted into one of seven priority groups. Those with service-related conditions resulting in disability of 50 percent or higher were considered the highest priority for treatment and were placed in group one. Those with incomes above VA determined thresholds and no service-connected disabilities were considered the lowest priority and placed in group seven. Priority groups 1-6 consisted of previously-eligible veterans and care remained free for them. Group 7 veterans were newly-eligible and were charged modest copayments.[4] The priority groups were used only for enrollment

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[3] Prior to the reorganization, there was no formal enrollment system, so we cannot examine changes in enrollment, only changes in users.
[4] The copay was $2 for each prescription for a 30-day supply in 2001 and $7 in 2002. In 2002, copays for outpatient visits were $15 for primary care, and $50 for specialty care outpatient visits

purposes and determination of copays during the time period of our study. For all enrollees, routine care appointments were provided on a first-come first-served basis regardless of group.[5]

The VA restructuring affected the availability of health care for all veterans. For those not previously eligible, the policy introduced a form of non-employer-provided health insurance. For the previously-eligible (i.e., low-income or disabled), it represented an increase in the scope of health care and health insurance, similar to what is available in the private sector. Therefore, this change provides an exogenous introduction of an outside health insurance option for all U.S. veterans but not for non-veterans. In order to estimate the spillover effect from publicly provided health insurance on spousal labor supply choices we compare the labor supply outcomes of wives of veterans to those of non-veterans before and after the change.

Previous research indicates that veterans used this health insurance to leave full-time employment. Between 35 and 70 percent of new VA health care users are individuals who drop private health insurance plans, potentially because they are leaving full-time work (Boyle 2009). In response to the policy change,

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such as outpatient surgery, audiology and optometry and so on. Preventive care, including flu shots, hepatitis C screenings, radiology services, electrocardiograms, and so on, was free. (Department of Veterans Affairs, 2002a)

[5] The priority groups did not receive differential access to care during the years of our study. However, in 2003, budget pressures caused the VA to deny care to the lowest-priority group - non-disabled non-poor veterans not previously enrolled in the system).

Boyle and Lahey (2010) find a 3.3% increase in the probability that a veteran leaves the labor force and an 8.4% decrease in the probability that a veteran works full time although some disadvantaged groups appear to increase their labor supply.

III.   Theory, Data, and Empirics

A. Theory

In the simplest model, health insurance on the job is paid for in terms of lower compensation on the job.   Receiving health insurance exogenous to employment is therefore akin to a positive income shock for the household. In this model, there is an income effect which dictates that household labor supply will drop.

However, it is not clear within the household whether this decrease in labor supply will be borne by both spouses or by a specific spouse. Boyle and Lahey (2010) find that husbands' labor supply drops upon receipt of public health insurance, but they do not explore the spillover effects on spousal labor supply. Because wives in these cohorts are more likely than their husbands to have jobs with flexible hours, it is possible that a wife's hours may rise when a husband leaves a traditional 40-50 hour a week job, although the income effect would dictate that total family labor supply would decrease.   If a woman had been

receiving health insurance through her husband's job but he has been offered public health insurance, it may make sense for the wife to seek employment options that enable her to obtain her own employer-provided insurance, such as by increasing her hours to full-time or obtaining a new job with health insurance coverage. Alternatively, she might increase her work hours or seek a higher-paying position in order to pay for her own health insurance out-of-pocket. Therefore, we would expect to see a larger positive effect on labor market outcomes for women who did not have employer-provided health insurance of their own in the previous year.

On the other hand, because retirement is often a joint decision, we might also expect a woman's labor force participation to decrease when her husband's decreases. Because of potential complementarity of spousal leisure, the value of the wife's leisure time may increase when her husband retires.[6] Therefore a husband's receipt of insurance would correspond to decreased work outcomes for the wife as well.

Results may also vary by education because of the different opportunities that are available for women of differing education levels. For example, women with less education may be better able than more educated women to control their

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[6] See Coile 2004 for a discussion of this with respect to Social Security and private pension receipt.

job hours on the intensive margin, adding more hours to a part-time job. Women with more education may be more likely to retain or obtain full-time employment.

B. Data

This study uses data for the years 1992 through 2002 from the Census Bureau's March Current Population Survey (CPS). The CPS includes consistent information on employment and demographic controls, including veteran status, at an annual level for these years. Using a difference-in-differences (DD) estimation strategy, we compare the labor supply choices of wives of veterans and wives of non-veterans before and after the restructuring of VA health care. We thus limit our sample to married couples. Because we are mimicking the effects of a public insurance expansion for those approaching the current age of Medicare eligibility, we focus on individuals approaching retirement by limiting the sample to individuals ages 55 through 64.[7] Additionally, because of the small number of female veterans in this age cohort we restrict our veteran sample to include only males. We delete from our sample couples for which the wife is a veteran, as these wives will be directly affected by the treatment.[8] With these restrictions, the

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[7] Medicare eligibility at age 65 affects the impact of other public health insurance on the work decision, so we do not include those ages. In general, we find that the significance of results is slightly stronger if we limit to those age 50-64 rather than 55-64, possibly because of a larger sample size.

[8] We also delete the two observations for which the wife is under the age of 18. The results are nearly identical when these are not deleted. We have also run regressions limiting wife ages to 45-

treated population is therefore the wives of married male veterans ages 55 to 64, and the control group is the wives of married male non-veterans in the same age group. We define 1992-1995 as the pre-policy period and 1998-2002 as the post-policy period because changes in the VA health care were rolled out during 1996 and 1997.[9]

The CPS allows us to study labor market outcomes on the extensive margin such as labor force or employment exit, and on the intensive margin, such as hours worked, or movement into part-time work. It further allows us to examine earnings, although the universe for which we can study current earnings outcomes is limited during this time period, and type of labor force participation, such as self-employment. We are also able to examine the effects for different demographic groups, such as by education. [10]

C. Main Specification

64, 50-64, and 55-64. In general these results are qualitatively the same as our main results. Quantitatively, Table 3 results on work outcomes are slightly larger in magnitude and significance for these subsets (Table 7, Panel I provides some results) and Table 4 results are quantitatively similar.

[9] We end our study period in 2002 because VA revised the rules for obtaining health care January 2003. We have also estimated our regressions restricting our post-period to 1998-2001 because of a concern that particular Vietnam Era veterans are affected by a 2002 change that categorized diabetes as a war-related injury for veterans who may have been exposed to Agent Orange (Duggan et al. 2010, Autor and Duggan 2007). Results are qualitatively almost identical and significance increases in some regressions when we remove 2002 from our sample. Table 7, Panel III provides these results.

[10] Results by VA means-tested status are very similar to those by education level and are therefore not included.

We use a probit model to estimate the following equation:

$$(1) \qquad y_i = \beta_0 + \beta_1 veteran + \beta_2 veteran*post + \mathbf{X'}\beta_3 + \delta_t + \sigma_s + \zeta_{st} + \varepsilon$$

The various dependent variables, y_i, include indicators for wives' labor supply outcomes including not working, self-employed, working part-time conditional on working, hours worked last week, weekly hours worked conditional on working any hours, weekly earnings, and ln(weekly earnings).[11] The variable *not working* is 0 if the wife is employed and 1 otherwise. The *part-time* variable reported is coded as 1 if the number of weekly hours worked is between 0 and 35 hours, and 0 if the individual works more than 35 hours. *Self-employed* is an indicator that is equal to 1 if the class of worker is self-employed (either incorporated or not incorporated) and 0 otherwise.

Among the independent variables, *veteran* is a dummy equal to 1 if the husband has been honorably discharged from active military duty, *post* is a dummy equal to 1 in the post-policy period, *X* is a vector of the wife's individual characteristics including age, race, education, and indicators for employer-

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[11] Weekly earnings are earnings during a usual work week. This question is limited only to respondents in their fourth and eighth months of the survey, greatly reducing sample size. For the weekly earnings outcomes we code respondents in these months who did not have positive earnings as having zero earnings. Hourly earnings are constructed from weekly earnings and are available from the authors. We present weekly earnings because the results for hourly wages are similar to those for weekly earnings but, as a created variable, introduce more measurement error, and it is more problematic dealing with top-coding. Direct hourly earnings are available only for the subset of the sample that earns an hourly wage.

provided health insurance and pensions in the previous or current year (including codes of 0 for those not employed) and δ_t is a full set of year dummies while σ_s is a full set of state dummies and ζ_{st} is a state-specific time trend. State dummies and year dummies account for heterogeneity in veteran take-up by state and time; this heterogeneity could be caused by local economic conditions making the program more attractive or variation in the degree to which the program was publicized to veterans in different regions. A state-specific time trend accounts for factors varying within states linearly over time in some specifications. Because the propensity for separating from the labor force will vary with benefits offered, we include indicators for employer-provided health insurance coverage and inclusion in a pension plan in the previous year in some specifications. Standard errors are adjusted for non-independence of the errors within the *veteran*year* group.

D. Identification assumptions

In a difference-in-differences model, in order to interpret the results causally, specific assumptions must be satisfied. In our quasi-experimental setup, it must be true that: (1) wives of veterans and non-veterans are reasonably similar before the healthcare expansion, (2) only veterans are affected by the VA expansion, (3) no other shocks occur during this time period that differentially

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affect household labor supply choices, and (4) that the two populations would not trend differentially in the absence of a policy change due to unobservable factors.

Table 1 presents summary statistics demonstrating that the veteran and non-veteran samples are reasonably comparable in the pre-period. The average veteran is more educated, and slightly more likely to have employer-provided health insurance than the average non-veteran. As would be expected with assortative mating, wives of veterans are also somewhat more educated than wives of non-veterans. Because wives of veterans are slightly older than wives of non-veterans in the pre-period, and the age composition of veterans compared to non-veterans is changing over time, it is important to include controls for wife's age in all specifications. Wives of veterans are more likely to be not working than those of non-veterans in the pre-period sample. National Health Interview Survey calculations available in Boyle and Lahey (2010) demonstrate that there are no differences in health between veterans and non-veterans in the pre-period for the cohorts examined in this study.

Assumption (2) is valid because non-veterans and their spouses were not affected by the VA insurance expansion. Although some veterans already had access to VA health insurance, it was much less comprehensive than the coverage post-expansion, so those individuals are still substantially impacted by the change. Using textbook definitions of insurance, veterans were insured once VA coverage

was offered (whether or not they formally enrolled) because they could sign up at any time if coverage was needed. Therefore even if they were not formally insured, they were insured in an economic sense, and thus were treated in the first stage. However, if some veterans were unaware of the insurance, our results will provide an underestimate of the behavioral effect of full government coverage. [12]

The third assumption would be violated if something else besides this expansion affects veterans and non-veterans or their wives differentially. Policy changes in 1996-1997 such as welfare reform are unlikely to affect older male veterans and their wives differently than older male non-veterans and their wives. Finally, unobserved systematic differences between the treatment and control groups could cause the treatment and control to trend differently in the post-period. However, we find no evidence of pre-existing trends using pre-policy years as a falsification exercise. Additionally, results are very similar when the model is fully interacted with *veteran*.

IV.   Results

First, we demonstrate that the VA expansion had a direct negative effect on the labor supply of married men. Table 2, Panel I provides the effects from

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[12] According to a 2001 survey, 22% of unenrolled veterans said they were unaware of the program (Department of Veterans Affairs, 2002b).

estimating equation (1) on outcomes for married men only using the men's characteristics as controls.[13] Veterans are more likely than the control group to be not working after receiving VA health insurance, with a significant coefficient of 0.008 points once a full set of controls is added, a 2.3% increase relative to the pre-period veteran average of 0.35. Veterans also increase part-time work with significant coefficients of 0.016 points in both specifications, an increase of 15.8% relative to the pre-period. Table 2, Panel II, provides a robustness check for these results, demonstrating that there is not a pre-trend by cutting the universe to only include pre-period data and creating a "fake post" variable that is 1 for 1994-1995 and 0 for 1992-1993. As would be expected if there was not a pre-trend, results are not significant, and indeed, are opposite-signed for the not working outcome.

Having demonstrated that the VA expansion decreased married men's labor supply, we turn to the spillover effects of this coverage on their wives who are not eligible to use VA health care. First, we test the effects of public insurance on wives' labor supply on the extensive margin. As shown in Table 3,

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[13] These results differ slightly from those in Boyle and Lahey (2010) because the universe for that exercise included single men (who are shown to be more likely to leave the labor market than married men after receiving health insurance) and, in order to be consistent with the previous job-lock literature, limited to men who were working in the previous year. We do not condition on previous employment to examine the spillover effects on spouses. Additionally, in Boyle and Lahey (2010) we included industry and occupation controls in the set of full controls, but in our regressions with wife outcomes, the small size of some of these cells causes observations to drop out in the probit specifications, potentially resulting in selection biases. Results are nearly identical for the men and qualitatively similar for the women results with these controls included.

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Panel I, columns (1) and (2), we find that wives are between 1 and 2 ppt less likely to be not working once their husbands receive VA insurance. This implies a 3-4% increase in the probability of working relative to the pre-period average of 0.473, although once full controls are added this effect is only marginally significant. These results appear to be driven by wives with high school or less education, as demonstrated in Table 3, Panel II, columns (1) and (2). Women with high school education or less are 3 ppt more likely (a 5.6% increase off a base of 0.53) to work when their husbands are offered VA insurance. Coefficients are smaller, insignificant, and change signs when full controls are added, for women with at least some college education as shown in Tables 3, Panel III, columns (1) and (2). Similarly, we find in Table 3, Panel I, columns (3) and (4) that average hours worked per week for all women increases by approximately half an hour (between 0.44 and 0.63 hours). When hours worked are examined by women's education level, women with a high school education or less in Table 3, Panel II, columns (3) and (4), work 0.6 to 0.8 hours more per week when their husbands are offered health insurance, while results in Table 3, Panel III, columns (3) and (4) are positive but insignificant for those with more education. We proxy for work on the intensive margin with weekly hours worked and weekly earnings conditional on working any hours or having non-zero earnings respectively However, conditional on working any hours, hours worked do not increase

significantly and the magnitudes are smaller, suggesting that the increase is primarily on the extensive margin.

In Table 4 we examine the effect on women's wages using a tobit regression that adjusts for topcoding.[14] Unfortunately, the question of usual weekly wages was only asked to two of the CPS rotation groups, and sample sizes for this variable are thus much smaller than for the other outcome measures. The coefficients of interest are not statistically significant as shown in columns (1) and (2). However, log weekly earnings in Table 4, Panel I, columns (3) and (4) increase for all women (a 6% to 8% change in wages) and are somewhat larger (an 11-16% change in wages compared to 8-9%) for more educated women (Table 4, Panel III, columns (3) and (4)) than for less educated (Tables 4, Panel II, columns (3) and (4)). Because increases in weekly earnings may result from increased hours worked and/or increased wages (which may be affected by choices in benefits), we are reluctant to put too much theoretical emphasis on the earnings results.

Women who had health insurance coverage from their employers prior to the policy implementation may be more likely to stay employed than those who did not in order to keep that coverage. However, women who did not have their own health insurance coverage may need to earn more money to self-insure if

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[14] Results trimming the top 5% of wages in an OLS regression framework are very similar.

they lose their husbands' coverage, or may seek jobs with employer-provided insurance. Results in Table 5 Panel I demonstrate that women with health insurance in the previous year are 2.2 ppt less likely to be not working, a 4.6% decrease off the base of 0.47, but 1.8 ppt more likely to work part-time when their husbands get health insurance, a 6.4% increase off the base of 0.28 for all wives of veterans in the pre-period, and a 4% increase off the base of 0.43 for wives with prior health insurance. Women without health insurance in the previous year are less likely to be not working, but not significantly so and are 4.1 ppt less likely to be part-time, a 14.4% decrease off the base of all wives and a 32% decrease off the base of 0.13 for wives without health insurance in the previous period. As shown in Table 5, Panel II, for women with employer-provided health insurance, hours do not change significantly overall but decrease significantly conditional on working at all with a coefficient of -0.59. For women without their own health insurance in the previous year, hours increase significantly overall, with a coefficient of 0.77, and increase conditional on working any hours with a coefficient of 1.08. Earnings increase significantly for women without employer-provided health insurance both conditional on having any earnings and unconditional, but are not significant for women with health insurance. These results suggest that women with health insurance are more likely to stay employed

but are not as focused on additional earnings, whereas women without health insurance increase their hours and earnings, possibly to afford health costs.[15]

We also look at the transitions that these wives make as a result of the change in their husbands' health insurance availability. Table 6 reports marginal effects from multinomial logit regressions that examine transitions into and out of not working, full- and part-time work and self-employment. Panel I replicates our main regression in a multinomial logit framework for all wives in our sample (i.e. not conditioning on the wife's labor force experiences in the previous year). Consistent with the main results, not working outcomes decrease about 1.95 ppt, and much of this decrease appears to be women increasing their full-time labor force participation. However, these transitions are different for women who were unattached to the labor force in the previous period. Panel II limits our sample to women who were not working at all in the previous year. These individuals are more likely to enter the labor force upon the husbands' receipt of VA insurance, and they appear to predominately enter part-time work for an employer or self-employment. Women who worked part-time in the previous year, on the other hand, as shown in Panel III, do not change their labor force attachment, but instead work more hours, moving from part-time work into full-time work. This transition potentially makes them eligible for employer-provided health insurance

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[15] These results should be interpreted with some degree of caution, as the Current Population Survey variables for health insurance may not be reliable or consistent during these years (Fronstin 2000, Nelson and Mills 2001).

or provides the additional income needed to self-insure. Finally, in Panel IV, we see no effect on women who were working full-time in the previous year. They neither leave the labor market nor change their labor force participation. These results are highly consistent with the idea that married women value health insurance and seek out their own employer-provided health insurance or seek greater income in order to pay for potential medical expenses once their husbands are offered publicly provided health insurance.

Table 7 provides various robustness checks. In our base specification, we included all wives over the age of 18 in our sample. However, women of younger ages may have different labor market attachment than older women. Panel I provides results limiting to middle-aged and older wives. When wife ages are limited to 45-64, the percentage point magnitude of the results for not working and hours worked outcomes is very similar to that in the main specification in Table 3. Limiting women to the same ages as the men in the sample, age 55-64 provides larger magnitude results than our earlier sample. In this case, women decrease not working by 3.4 ppt and increase hours worked by 1.12, about twice the magnitude as our base regression.

In Panel II of Table 7, we explore outcomes for wives whose husbands are working part time or are not working. Our main results in Table 3 include all wives regardless of their husbands' labor force attachment because the timing of

labor supply changes within couples may vary upon the husbands' public insurance receipt. Some husbands with employer-provided insurance may continue full-time work in spite of the availability of VA insurance, with the expectation that they will reduce their labor supply once their wives are able to find an alternate source of insurance (i.e the wife might change her labor supply before or at the same time as the husband). Nevertheless, we may expect to see stronger results for couples in which the husband is either not working full-time or is not working at all, as these are couples for whom the offer is more likely to have had a direct effect (i.e. for whom the VA coverage potentially caused a decrease in the husband's labor supply). Panel II does demonstrate results with larger magnitudes for these two groups. Wives of husbands who are not working full time are more likely to work and work about 1.37 more hours per week after public health insurance is offered to their husbands. Similarly, wives of husbands who are not working at all are even more likely to work (decrease of not working of 4.3 ppt) and increase their hours worked by 1.76 hours per week.

Panel III provides additional robustness checks. Columns (1) and (2) demonstrate that fully interacting the independent variables in the model with *veteran* provides results similar to the base regression. Columns (3) and (4) demonstrate the same for removing the year 2002 (when diabetic Vietnam veterans potentially exposed to Agent Orange were re-categorized as having work-related injuries).

V.   Discussion and Conclusion

In conclusion, when an older husband obtains public health insurance that does not cover his family members, less-educated wives increase their labor supply. Wives with a high school education or less increase their labor supply 3 percentage points, a 6% increase. These less educated women also work 0.6-0.8 more hours per week after the policy change. We find no statistically significant change in probability of work for wives with higher levels of education. Conditional on non-zero earnings, real earnings increase for all wives in this sample, and the effect is potentially larger for wives with some college education or more.

Results also differ by access to employer-provided health insurance in the previous year. Women without this health insurance increase their hours to a greater extent than women with this insurance in the previous year once their husbands are offered health insurance. Although all women on average increase their full-time work and their labor force participation, women who were not working in the previous year are more likely to enter the labor force to participate in part-time work or self-employment. Women who worked part-time in the previous year are more likely to increase their hours to full-time work. Women who previously worked full-time do not seem to be as affected by their husband's access to publicly provided health insurance. These results suggest that women in

"career" jobs either cannot or will not adjust their own work behavior compared to women in more flexible employment.

Our results are robust to several different specifications, including different choices of age, different year universes, and a full-veteran interaction. In addition, results seem to be stronger for women whose husbands are not working full-time or are not working at all.

We hypothesize that these changes occur because, as found in Boyle and Lahey (2010), when older men obtain health insurance not linked to their employment, they are more likely to leave the full-time for-an-employer labor force, and are thus less likely to be able to provide employer-based insurance to their families. In addition, older men in career jobs are more likely to have a choice between working full-time or not working, whereas women of the same cohort are more likely to be able to provide income from more flexible employment. Thus, in order to reach a target income or to provide family health insurance or to self-insure medical expenses, women with a high school education or less increase their labor supply. This effect comes from both women with less education increasing their labor force participation and from these women being less likely to leave the labor force. We do not find any evidence of work reductions based on complementarity of spousal leisure.

These results differ from the results on retiree health insurance or COBRA, which found a joint retirement effect for these insurances. However, the

policy change is also different than that of coverage that includes the entire family rather than just a spouse. Women, who are on average not yet eligible for Medicare when their spouses become eligible (because men are, on average, older than their wives), will likely need to continue working in order to be able to cover the costs for their own health insurance or health care even after the spouse has retired. This need will be especially true for less-educated women, who are less likely to have access to employer-based retiree coverage of their own.

This research suggests that although men's labor force participation would decrease as an effect of increased public health insurance coverage, some of this decrease in participation would be made up for by an increase in the labor force participation and hours worked of their wives.

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Table 1: *Summary Statistics, CPS 1992-2002*

	Veterans		Non-Veterans	
	Pre	**Post**	**Pre**	**Post**
	Husbands			
Observations	10,272	9,596	8,292	12,964
Age	59.808	59.251	58.911	59.022
White	0.943	0.924	0.867	0.867
No HS	0.159	0.073	0.341	0.244
HS	0.363	0.359	0.304	0.295
Some College	0.227	0.281	0.137	0.165
College Grad	0.148	0.162	0.105	0.147
Grad School	0.102	0.125	0.114	0.150
Pension Plan	0.403	0.451	0.371	0.397
Empl. HI Plan	0.651	0.657	0.573	0.579
Northeast	0.233	0.212	0.251	0.220
Midwest	0.252	0.236	0.237	0.225
South	0.308	0.315	0.308	0.322
West	0.207	0.237	0.204	0.234
Not Working	0.350	0.309	0.322	0.295
Self-Employed	0.163	0.148	0.184	0.170
Hours Worked	41.860	42.110	42.566	42.903
Occupations:				
Prof/Management	0.238	0.263	0.221	0.265
Tech/Sales/Cleric	0.158	0.159	0.127	0.125
Service	0.053	0.057	0.064	0.063
Farming	0.037	0.026	0.056	0.045
Craftsman	0.130	0.141	0.135	0.131
Operator	0.125	0.121	0.154	0.142
Industries:				
Agric/Mining	0.040	0.029	0.056	0.048
Construction	0.062	0.065	0.072	0.075
Manufacturing	0.152	0.134	0.174	0.147
Transport/Commun	0.075	0.090	0.063	0.063
Trade	0.112	0.107	0.125	0.114
Finance/Real estate	0.044	0.046	0.036	0.043
Business/Repair	0.037	0.047	0.039	0.045
Personal	0.024	0.021	0.025	0.028
Public	0.047	0.055	0.027	0.029
Professional	0.113	0.123	0.116	0.141
	Wives			
Observations	10,187	9,493	8,164	12,674
Age	56.078	55.417	55.085	55.265
White	0.938	0.918	0.868	0.869
No HS	0.144	0.091	0.263	0.186
HS	0.468	0.416	0.412	0.369
Some College	0.230	0.274	0.175	0.215
College Grad	0.101	0.137	0.090	0.135
Grad School	0.053	0.078	0.054	0.086
Not Working	0.473	0.385	0.467	0.406
Self-Employed	0.083	0.082	0.090	0.088
Hours Worked	17.375	20.922	17.543	19.867

Note: Universe is limited to married couples with husbands between the ages of 55 and 64 whose wives are not veterans. Two observations with wives under the age of 18 have been deleted from the universe. The pre period includes year s 1992-1995 and the post period includes years 1998-2002.

Table 2

Effect of Insurance Receipt on Labor Supply Outcomes for Veterans

	Not Working		Part Time		Self Employed	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel I: Effects of Insurance Receipt					
veteran*post	0.0058	0.0082*	0.0160**	0.0155**	-0.002	-0.0015
	(0.0051)	(0.0035)	(0.0051)	(0.0050)	(0.0043)	(0.0046)
veteran	0.0164**	0.0311**	-0.0018	0.0038	-0.0350**	-0.0239**
	(0.0039)	(0.0027)	(0.0038)	(0.0038)	(0.0040)	(0.0045)
Observations	41,440	41,440	26,605	26,605	41,440	41,440
	Panel II: Falsification exercise: 1992-1993 = pre, 1994-1995 = post					
veteran*fakepost	-0.0145	-0.0067	0.0078	0.0048	0.0100	0.0078
	(0.0079)	(0.0042)	(0.0080)	(0.0070)	(0.0070)	(0.0085)
veteran	0.0255**	0.0359**	-0.0053	0.0017	-0.0394**	-0.0275**
	(0.0068)	(0.0041)	(0.0034)	(0.0039)	(0.0050)	(0.0061)
Full controls?	No	Yes	No	Yes	No	Yes
State time trend?	No	Yes	No	Yes	No	Yes
Observations	18,722	18,722	11,591	11,591	18,722	18,722

Notes: Coefficient estimates are taken from a probit regression as described in eq. (1). Marginal effects are reported. Regressions include age, race, state, year and education dummies and a constant. Full controls include pension and health insurance receipt in the previous year for columns (1) and (2) and current year in columns (3)-(6). The universe in Panel I includes the years 1992-2002 with 1996 and 1997 omitted. The universe in Panel II includes years 1992-1995, with fakepost indicating the years 1994-1995. Robust standard errors in parentheses are clustered on veteran and year.

* significant at 5%; ** significant at 1%

Table 3

Effect of Husband's Insurance on Wife's outcomes

	Not Working		Hours Worked		Hours worked|hrs>0	
	Min Controls	Full Controls	Min Controls	Full Controls	Min Controls	Full Controls
	(1)	(2)	(3)	(4)	(5)	(6)
	I. All Wives					
veteran*post	-0.0180*	-0.0136+	0.6336**	0.4365+	0.2207	0.2403
	(0.0071)	(0.0081)	(0.2146)	(0.2071)	(0.2308)	(0.2230)
veteran	0.0160**	0.0243**	-0.4422**	-0.6665**	0.0262	-0.1534
	(0.0045)	(0.0046)	(0.1186)	(0.1295)	(0.1616)	(0.1626)
Observations	40,495	40,495	40,518	40,518	21,802	21,802
	II. Wives with High School Education or Less Education					
veteran*post	-0.0302**	-0.0298**	0.7967**	0.6303*	-0.0251	0.0708
	(0.0092)	(0.0113)	(0.2413)	(0.2663)	(0.1825)	(0.1949)
veteran	0.0218**	0.0330**	-0.6943**	-0.9350**	-0.0921	-0.2837
	(0.0072)	(0.0088)	(0.1620)	(0.1841)	(0.1403)	(0.1735)
Observations	23,768	23,768	23,827	23,827	11,311	11,311
	III. Wives with Some College or More Education					
veteran*post	-0.0035	0.0076	0.4789	0.1495	0.5698	0.4861
	(0.0085)	(0.0092)	(0.5074)	(0.4371)	(0.5091)	(0.5123)
veteran	0.0046	0.0086+	-0.2125	-0.3957	-0.2841	-0.3889
	(0.0057)	(0.0050)	(0.3385)	(0.2740)	(0.3856)	(0.3982)
Observations	13,837	13,837	13,881	13,881	8,464	8,464

Notes: Coefficient estimates are taken from equation (1). Columns (1) and (2) report the marginal effects from a probit regression. Columns (3)-(6) report OLS results. Regressions include age, race, state, year and education dummies and a constant. Full controls include pension and health insurance receipt in the previous year and a state-specific time trend. Robust standard errors in parentheses are clustered on veteran and year.

+ significant at 10%; * significant at 5%; ** significant at 1%

Table 4
Effect of Husband's Insurance on Wife's Outcomes

	Earnings		ln(Earnings)	
	Min Controls	Full Controls	Min Controls	Full Controls
	(1)	(2)	(3)	(4)
	I. All Wives			
veteran*post	0.0325	-1.4348	0.0634*	0.0783**
	(1.2325)	(1.7571)	(0.0287)	(0.0256)
veteran	4.5865**	3.1662*	0.0344	-0.0076
	(1.2617)	(1.4128)	(0.0249)	(0.0213)
Observations	9,768	9,768	4,738	4,738
	II. Wives with High School Education or Less Education			
veteran*post	-2.1316	-3.4454	0.0805*	0.0878**
	(3.2904)	(3.7608)	(0.0400)	(0.0329)
veteran	1.9817	1.6011	0.0427	0.0032
	(1.3003)	(1.6235)	(0.0361)	(0.0283)
Observations	5,775	5,775	2,428	2,428
	III. Wives with Some College or More Education			
veteran*post	4.9758	4.6600	0.1072+	0.1604**
	(3.7273)	(4.1977)	(0.0571)	(0.0474)
veteran	1.1148	-0.9412	-0.0338	-0.0917**
	(2.3850)	(2.3538)	(0.0313)	(0.0293)
Observations	3,285	3,285	1,847	1,847

Notes: Coefficient estimates report tobit estimates of equation (1), correcting for earnings topcodes. Earnings are in 1982-1984 dollars using the BLS CPI inflator. Regressions include age, race, state, year and education dummies and a constant. Full controls include pension and health insurance receipt in the previous year and a state-specific time trend. Robust standard errors in parentheses are clustered on veteran and year.

+ significant at 10%; * significant at 5%; ** significant at 1%

Table 5
Results by Wife's Health Insurance Receipt

	Wife Had Employer-Provided Health Insurance		Wife Without Employer-Provided Health Insurance	
	(1)	(2)	(3)	(4)
	Panel I: Work outcomes			
	Not Working	Part Time	Not Working	Part Time
veteran*post	-0.0216**	0.0181*	-0.0140	-0.0407**
	(0.0062)	(0.0076)	(0.0089)	(0.0151)
veteran	0.0249**	-0.0147*	0.0152*	0.0103
	(0.0035)	(0.0058)	(0.0063)	(0.0120)
Sig different?			Yes	Yes
Observations	14,063	11,044	26,532	11,465
	Panel II: Hours Outcomes			
	Hrs Worked	Hrs Worked|hrs>0	Hrs Worked	Hrs Worked|hrs>0
veteran*post	0.3765	-0.5850*	0.7653**	1.0810*
	(0.3853)	(0.2279)	(0.2487)	(0.4673)
veteran	-0.5319+	0.4188*	-0.5718**	-0.4936
	(0.2922)	(0.1811)	(0.1349)	(0.3564)
			Yes	Yes
Observations	14,129	11,083	26,573	10,791
	Panel III: Earnings Outcomes			
	Earnings	ln(Earnings)	Earnings	ln(Earnings)
veteran*post	3.1239	-0.0300	0.2210	0.2244**
	(5.6723)	(0.0245)	(3.1185)	(0.0521)
veteran	0.5759	0.0699**	2.4344	-0.0892*
	(4.2682)	(0.0174)	(1.5601)	(0.0357)
			No	Yes
Observations	3,420	2,660	6,396	2,099

Note: Coefficient estimates are taken from equation (1). Panel I reports the marginal effects from a probit regression. Panels II and II report results from an OLS regression. Earnings are in 1982-1984 dollars using the BLS CPI inflator. Regressions include race, and a full set of state, year, age, and education dummies and a constant. Robust standard errors in parentheses are clustered on veteran and year.
* significant at 5%; ** significant at 1%

Table 6
Pathways: Multinomial Logits

	(1) Full-Time	(2) Part-Time	(3) Self-Employed	(4) Not Working
	I. All Wives			
veteran*post	0.0184**	-0.0009	0.0020	-0.0195**
	(0.0069)	(0.0036)	(0.0040)	(0.0068)
veteran	-0.0003	-0.0027	-0.0144**	0.0174**
	(0.0042)	(0.0033)	(0.0030)	(0.0046)
Observations	39,526	39,526	39,526	39,526
	II. Wives who Worked 0 Weeks Last Year			
veteran*post	-0.0009+	0.0037*	0.0034*	-0.0061**
	(0.0005)	(0.0017)	(0.0014)	(0.0022)
veteran	-0.00002	-0.0026*	-0.0034**	0.0061**
	(0.0006)	(0.0011)	(0.0007)	(0.0015)
Observations	15,028	15,028	15,028	15,028
	III. Wives who Worked Part-Time Last Year			
veteran*post	0.0388*	-0.0319*	-0.0074	0.0006
	(0.0153)	(0.0200)	(0.0184)	(0.0102)
veteran	-0.0369**	0.0391**	-0.0066	0.0044
	(0.0045)	(0.0070)	(0.0172)	(0.0097)
Observations	5,081	5,081	5,081	5,081
	IV. Wives who Worked Full-Time Last Year			
veteran*post	-0.0060	-0.0036	0.0057	0.0038
	(0.0046)	(0.0028)	(0.0038)	(0.0038)
veteran	0.0244**	0.0005	-0.0228**	-0.0022
	(0.0025)	(0.0023)	(0.0025)	(0.0029)
Observations	15,490	15,490	15,490	15,490

Notes: Coefficient estimates are from a multinomial
logit. Regressions include age, race, state, year and education
dummies and a constant. Part-time in the previous year is defined
as working more than 0 and less than 35 hours/week and at least 40
weeks in the previous year. Full-time in the previous year is defined
as 35 or more hours/week and at least 40 weeks in the previous year.
Robust standard errors in parentheses are clustered on veteran and
year.

+ significant at 10%; * significant at 5%; ** significant at 1%

Table 7

Robustness Checks

	(1) Not Working	(2) Hours Worked	(3) Not Working	(4) Hours Worked
	Panel I: Different Wife Ages			
	Ages 45-64		Ages 55-64	
veteran*post	-0.0160*	0.7803**	-0.0337**	1.1243*
	(0.0074)	(0.2506)	(0.0082)	(0.4260)
veteran	0.0164**	-0.5570**	0.0310**	-0.9898*
	(0.0053)	(0.1329)	(0.0073)	(0.3626)
Observations	36,762	36,762	23,314	23,314
	Panel II: Limiting Husbands			
	Husband Not Working Full-Time		Husband Not Working	
veteran*post	-0.0353**	1.3721**	-0.0430**	1.7639**
	(0.0057)	(0.2106)	(0.0095)	(0.2712)
veteran	0.0159**	-0.3735**	0.0055	-0.5967**
	(0.0048)	(0.1142)	(0.0080)	(0.1939)
Observations	23,732	23,774	12,751	12,827
	Panel III: Additional Checks			
	Full veteran interaction		No 2002	
veteran*post	-0.0200**	0.6017*	-0.0263**	0.9216**
	(0.0070)	(0.2296)	(0.0059)	(0.1562)
veteran	---	---	0.0155**	-0.4478**
			(0.0046)	(0.1287)
Observations	40,477	40,518	34,537	34,587

Note: Coefficient estimates are taken from equation (1). Columns (1) and (3) report the marginal effects from a probit regression. The remaining columns report results from an OLS regression. Full veteran interactions do not show a veteran main effect because all controls are interacted with veteran. Regressions include race, and a full set of state, year, age, and education dummies and a constant. Robust standard errors in parentheses are clustered on veteran and year.

* significant at 5%; ** significant at 1%