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CROWD-OUT: EVIDENCE FROM THE
MEDICARE AS SECONDARY PAYER
LEGISLATION

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ABSTRACT

The cost of efforts to expand health insurance coverage to the currently uninsured increases when people who would otherwise purchase private insurance obtain subsidized public coverage. Legislators are increasingly interested in mechanisms that target insurance benefits to those who need them most. This paper investigates the effects of one of the first such targeting efforts, the 1982 Medicare as Secondary Payer (MSP) provisions.

The MSP rules require employers who offer insurance coverage to their employees under 65 to offer coverage on the same terms to their Medicare-eligible employees. This coverage then becomes “primary” to Medicare. We examine the incidence of this implicit tax, the magnitude of tax avoidance efforts, and the extent of tax compliance.

We find little evidence that the MSP rules affected the wages or employment of affected workers. We find weak evidence suggesting that the MSP shifted the composition of employment of older workers toward MSP-exempt jobs. We find strong evidence of low compliance with the MSP rules.

Our results cast doubt on the efficacy of provisions designed to reduce crowd-out in new health insurance programs.

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Most Americans obtain health insurance coverage through an employment relationship. In addition, Medicare, Medicaid and the new children's health insurance initiative provide health insurance to elderly and low-income subsets of the population. Eligibility for public insurance programs is based on rules that are only partly correlated with access to private insurance coverage. While elderly and low-income people would undoubtedly have lower rates of private insurance coverage than other groups in the absence of these programs, some people who are eligible for public coverage would have obtained private insurance coverage in their absence (Cutler and Gruber, 1996; Madrian, 1996). The cost of encouraging insurance coverage is increased to the extent that those who would otherwise purchase private coverage participate in a program. In that case, subsidized purchases of insurance substitute for -- or "crowd out" -- previously unsubsidized purchases.

There is substantial crowd-out associated with most insurance promotion programs. Estimates from the recent Medicaid expansion suggest that about 50% of those who obtained coverage would have otherwise been privately insured (Cutler and Gruber, 1996). Insurance coverage is highly correlated with income, so the extent of crowd-out is even higher for programs that encourage insurance purchase among higher income groups. In 1986, Congress expanded the deductibility of health insurance premiums to the self-employed. This expansion clearly increased health insurance coverage in this group. Nonetheless, between 90 and 95 percent of those who benefited from the program had held insurance coverage prior to its introduction (Glied, 1997; Gruber and Poterba, 1994). Estimates of the effect of the excludability of employer-provided insurance on insurance

participation similarly suggest that 75-85% of those who benefit from the exclusion would continue to buy some coverage if it were completely eliminated (CBO, 1994).

Universal insurance programs by design generate 100% crowd-out. When Medicare was passed, for example, all elderly people who had previously held health insurance received a windfall. As the costs of universal programs rise, however, legislators are increasingly interested in targeting even these benefits to those who need them. Before the current crowd-out debate began, Congress made changes in the Medicare program to try to reverse some of the insurance substitution that had happened through the grant of universal coverage to the elderly population. Through its Medicare as Secondary Payer legislation, passed in 1982, it strongly encouraged employers who offered health insurance to any of their workers to provide it, on similar terms, to their workers over 65, and required that any such insurance be “primary” to Medicare. Here, we examine the effects of this legislation.

Prior to 1983, Medicare-eligible seniors employed by firms that offered health insurance could choose to reject that insurance or to use it only as a supplement to their Medicare coverage. As part of the 1982 Tax Equity and Fiscal Responsibility Act (TEFRA), the Medicare rules changed so that if a Medicare eligible senior chose to decline employer based insurance in favor of Medicare, employer-sponsored coverage could no longer be used to supplement Medicare. If an elderly worker declined employer coverage, he had to pay for Medicare Part B premiums, assume all Medicare deductibles and co-payments, and lose any pharmaceutical coverage or other health benefits offered through an employer plan. Furthermore, the law prohibited employers from compensating

elderly individuals for dropping their coverage. If the eligible senior chose instead to retain employer coverage, Medicare acted as secondary payer for any items included in Medicare, but not covered under the employer's package. In essence the Medicare Secondary Payer legislation gave seniors a strong incentive to accept employer health insurance packages rather than join Medicare.

As we show below, the Medicare Secondary Payer (MSP) rules act as a tax that applies to a subset of the labor force—Medicare eligible workers – when they are employed in firms that offer health insurance coverage. This type of tax can have several effects. One set of effects is related to the incidence of the tax. Both cash wages received by affected workers and employment of workers in this category are likely to decline. A second set of effects concerns efforts to avoid the impact of the tax. Workers who are not eligible for health insurance benefits, either because they work at firms that do not offer coverage or because they work too few hours to obtain coverage, will not be affected by the new tax. If taxes affect only those who work in firms that offer insurance coverage, older workers are less likely to choose jobs in such firms. We expect that affected workers will switch toward jobs that do not include health benefits. A third set of effects may occur because of non-compliance with the new tax. The Medicare system is not well constructed to identify and collect MSP taxes and problems of compliance have bedeviled the system.

This paper examines the consequences of the MSP effort to shift some of the costs of public coverage back to the private sector. Using data from the Current Population Survey for 1981-1987, the period surrounding passage and implementation of the MSP,

we examine the incidence of the implicit tax generated by the legislation. We then estimate the extent of tax avoidance, by examining the hours worked and nature of jobs held by these workers. Finally, we estimate the extent of compliance with the legislation over the period under study.

The existence of these three sets of potential effects complicates the interpretation of our results. To the extent that firms do not comply with the legislation, there should be few tax avoidance or tax incidence effects. Similarly, if firms and workers avoid the tax, there should be little estimated tax incidence. We explore these issues in the conclusion.

II. The Medicare as Secondary Payer Legislation

Under the MSP legislation in TEFRA, Medicare became the secondary payer if an individual over the age of sixty-five was employed by a firm of more than 20 employees that provided a health insurance plan to its other employees. Beginning on January 1, 1983, if an employer chose to provide health insurance to employees under sixty-five, he/she had to offer coverage to those over 65 on identical terms and this coverage substituted for Medicare. The legislation further required employers to provide primary coverage to the Medicare-eligible spouses over age sixty-five of any employees under 65, if such spousal insurance coverage was normally provided. In the unusual case where an employer's health insurance package was not as comprehensive as Medicare, benefits would be provided through Medicare to ensure that all elderly individuals had a minimum level of insurance.

How costly was this mandate? To estimate the cost of the mandate, we use data on average per capita health spending paid by Medicare for those aged 65-69 for hospital

care and physician services (the principal services covered under the Medicare program) in 1987 (Waldo et al. 1989). These figures may understate the true magnitude of potential cost shifts to the extent that under the 1983 regulations, some Medicare costs would have been paid by employment-based insurance in 1987. In 1987, total hospital care and physician expenses for this group amounted to \$1849. In column 1, we adjust these figures for the growth rate of overall per capita Medicare expenditures and compute estimates for 1980-1986. In column 2, we report average annual earnings for workers aged 65-69 who report receiving employer-provided health insurance. In column 3, we report average annual earnings for all full-time workers aged 65-69. In column 4, we report average annual earnings for all workers age 65-69. In columns 5-7, we compute the ratio of per capita Medicare expenditures to annual wage and salary earnings, adjusted for the fraction of that population who hold health insurance (roughly 100%; 50%; and 35% respectively). On average, health care expenditures are equal to 8.2% of wage and salary earnings for workers with health insurance (column 5); 3.8% of wage and salary earnings for full time workers (column 6); and 5.5% of wage and salary earnings for all workers (column 7). In column 8, we report, for comparison purposes, the average percentage of total wages and salaries paid for health services and supplies based on the U.S. Department of Commerce national income and product accounts (Levit, Freeland, Waldo 1989). Our estimates of health care costs for those 65 and over may understate or overstate the true costs of employer-sponsored Medicare equivalent health insurance for this group. The estimate may understate true costs because the MSP provisions also require that employers cover the Medicare-eligible spouses of workers and because

employer-sponsored health insurance costs per capita are higher than Medicare costs. The estimate may overstate true costs to the extent that working 65-69 year olds are healthier than 65-69 year old non-workers.

III. Data

We use aggregate data on labor force participation for men and women over 65 and 40-64 and cross-sections from the March and May Current Population Surveys (CPS). We pool data from the March 1980, 1981, and 1982 CPS for the pre-mandate period, and from the 1985 and 1986 CPS data for the post-mandate period. The CPS contains detailed information on wages and salaries, hours worked per week, weeks worked per year, employment status and health insurance coverage for each of these years. The March CPS surveys approximately 150,000 individuals in each year. We compare workers age sixty-five through sixty-nine with workers forty through sixty-four. We drop individuals over age sixty-nine to avoid any problems that may result from the existence of mandatory retirement laws at age seventy in some states. Our resulting data set consists of approximately 48,000 individuals per year, with approximately 8,000 of those individuals between the age of sixty-five and sixty-nine for each survey year. The means for hourly wages and hours worked per week are presented in Appendix Table A. To obtain data on firm size we used the 1979, 1983 and 1988 May CPS surveys. We extract similar data sets from these samples, containing approximately 27,000 observations per year.

IV. The Incidence of the Mandate

The Medicare as Secondary Payer mandate can be viewed as a group-specific tax

levied only on employers who offer health insurance. The tax increases the cost of hiring workers over the age of sixty-five by the amount it costs to provide Medicare-equivalent insurance to these employees. The regulations are, thus, expected to lead to a decline in the demand for workers over the age of sixty-five in these firms.

Workers over sixty-five obtain no additional benefits as a consequence of the mandate. From the perspective of those whose employers do offer health insurance, precisely the same benefits are now being purchased through their employer as had been available through Medicare supplemented by employer-sponsored coverage. For those employees whose employers did not offer health insurance to their other employees, there is no change in the provider of health insurance coverage. In this respect, the Medicare as Secondary Payer mandate differs from a mandate that provides new benefits, such as the maternity benefit studied by Gruber (1994).

In the case of the MSP, we expect to observe declines in both employment and wages. The magnitude of the relative declines depends on the price elasticities of labor supply and demand. We expect labor demand to be relatively elastic, since workers under sixty-five are very good substitutes for older workers and MSP did not increase the cost of hiring workers under sixty-five¹. The labor supply of these workers is also likely to be relatively elastic given the availability of private pension and social security income for those over 65. If the elasticity of labor supply is 0.3, the elasticity of labor demand -0.5, and the cost of employer sponsored health insurance is 5% of wages on average, we would expect the MSP to lead to a decline in hourly wages of 1.9% and a decline in

¹ Under the pre-1983 equilibrium, wages of workers under 65 should have reflected the cost of their health insurance coverage while those of workers over 65 should not have reflected this cost.

employment of 1.0%.

i. Time Series Estimates

Labor force participation of men and women over 65 declined steadily from 1948 through the 1980s, leveling off at about 15% in 1987. Labor force participation has been declining for men age 55-64 since about 1970. Over this time period there were changes in both social security benefits and mandatory retirement laws, either of which could have significant consequences on labor force participation. Before examining the relationship between the time series of labor force participation and the MSP, we first check to see whether the period 1980-1985 included potentially confounding changes in either Social Security or mandatory retirement legislation. The Old Age, Survivors and Disability Insurance (OASDI) program was amended in 1983. Most of the changes made in 1983, however, were long term changes, including the shifting forward of the normal retirement age beginning in 2000 and changes in social security collection rates. There were several small benefit changes affecting divorced spouses, disabled persons, and military and government workers. There were no across the board benefit increases. These changes did not affect benefits received by individuals who reached age sixty-five during the sample period, and hence should not have affected labor force participation. Similarly, the financial status of retired households 65-69 and 55-64 changed little over the period following the legislation (1984-1991) according to analyses of the SIPP (Poterba, Venti, and Wise, 1994).

There were no major changes in mandatory retirement laws over this period either. In a 1986 report by the Chair of the Subcommittee on Health and Long Term Care, to the

House of Representatives it was estimated that 51% of workers in the United States still faced mandatory retirement at age seventy. However, the Age Discrimination in Employment Act of 1967 was amended in 1978 to protect workers less than seventy years old from mandatory retirement. We have limited our sample to individuals under seventy years old in an attempt to minimize the effect of any remaining mandatory retirement laws.

We examine the time-series of labor force participation for men 55-64 and 65-69 as an indicator of the potential effects of the MSP legislation, in light of the relatively stable policy environment governing older men and women in the early 1980s. Using seasonally-adjusted data from the Bureau of Labor Statistics, we contrast the time series properties of labor force participation for men 65-69, men 55-64, women 65-69, and women 55-64 before and after the introduction of the MSP. Our basic findings are summarized in Figure 1. We observe a sharp dip in the labor force participation of men 65-69 in mid-1983, as the MSP took effect, but no comparable decline in the labor force participation of men 55-64.

We test the significance of the decline in labor force participation illustrated in Figure 1 by regressing the labor force participation of 65-69 year olds on the participation of 55-64 year olds. We test several time series specification, with an without correcting for time series correlation. We first regress the labor force participation of workers 65-69 on that of workers 55-64 and over and a spline representing the implementation of the MSP legislation shown in equation (1).

$$LF_{65} = \alpha + \beta LF_{55} + \delta MSP + \varepsilon \quad (1)$$

Using this specification we find that there was a statistically significant decline in the labor

force participation of 65-69 year olds immediately following the introduction of MSP. However, after correcting for serial correlation we find that the introduction of MSP has no significant impact on the labor force participation of workers 65-69. This result is robust for a number of time series specifications. The results are reported in Table 2.

We examine the labor force participation of women over the same period and find a similar decline in labor force participation following the introduction of the MSP legislation. In general, women's labor supply has been rising, especially for younger cohorts of women, over the 1970s and 1980s. The labor force participation of women 65-69 fell 2/3 of a percentage point or 7%, relative to that of younger women over the MSP period. The deviation, however, was mainly a consequence of a change in the trend of labor force participation for younger women.

ii. *Comparing Wages, Employment, and Labor Force Participation in Multivariate Analysis*

These simple time series results may be contaminated by differences in the characteristics of the younger and older populations over time, or by other events that occurred at the same time as the MSP legislation. To improve the precision of the results, we use regression analysis to compare groups over time. We then take advantage of differences in the extent of health insurance coverage among different sociodemographic groups to contrast the experiences of subsets of the 65-69 year old group, again using the 40-64 year old population as controls.

Initially, we treat the population aged 65-69 as a test group and the population aged 40-64 as a control group. Individuals in the sample fall into one of four categories:

1) test group, pre-mandate, $y_{1,0}$, 2) test group, post-mandate, $y_{1,1}$, 3) control group, pre-mandate, $y_{0,0}$ and 4) control group, post-mandate, $y_{0,1}$. In a regression framework:

$$\ln W_{it} = \beta X_{it} + \gamma GROUP_i + \alpha mandate_i + \delta mandate_i * Group_i + \varepsilon_{it}, \quad (3)$$

where X is a matrix of individual characteristics for individual i at time t ; $GROUP = 1$ if an individual is in the test group, and zero otherwise, $MANDATE = 1$ if after the mandate, 0 if before, δ , the coefficient on the interaction term between year and group describes the effect of being in group 1 in year 1, that is, being in the treatment group after the tax, relative to being in the control group before the tax.

We examine changes in employment as a result of the mandate using a probit model (equation (4)). The same observables are used as in the previous formulation, however the dependent variable is now a binary variable equal to one if the individual is employed and equal to zero otherwise:

$$Pr ob(E_{it} = 1) = \Phi(\beta X_{it}, \gamma GROUP_i, \alpha mandate_i, \delta mandate_i * Group_i, u_{it}) \quad (4)$$

The MSP affects primarily older workers who make choices between working and retiring. We observe data on hourly wages (and hours worked), however, only for those who have chosen to work. There may, therefore, be selection bias in the distribution of observed wages. Although this issue is also a concern for workers under 65, it is potentially more serious in the analysis of wages for those over 64. We use Heckman two-step estimation correction models to adjust for the possibility that we are not observing a complete distribution of wages and hours. We use information on pension income from the CPS to help identify the sample selection results. Although this identification strategy is limited, we can compare the results of the selection-adjusted

model to those of models that do not control for sample selection.

We model the decision to participate in the labor force as:

$$U(z^*) = \pi A + v \quad (5)$$

Where z^* is the utility derived from labor market participation. An individual chooses to work if :

$U(z^*) > U(z^r)$ where $U(z^r)$ is the individuals reservation utility.

We do not observe z^* , but only the individual's decision to work or not. Therefore we can not use z^* , but instead a binary variable, $z=1$ if the individual works and $z=0$ if they do not.

That is:

$$\Pr ob(z_{it} = 1) = \Phi(\pi A, v) \quad (6)$$

A is a matrix containing all the variables from equation 4, and also including pension income. v is the error term, correlated with the ε_{it} and the u_{it} . We identify the probit model on pension income of older workers and the functional form of the probit. We can then model the true variable of interest, the individual's wages as follows:

$$E(\ln W_{it} | z = 1) = \beta X_{it} + \gamma GROUP_i + \alpha mandate_i + \delta mandate_i * Group_i + E(\varepsilon_{it} | z = 1) \quad (7)$$

The results of simple difference-in-difference estimates, multivariate estimates and sample selection corrected estimates are presented in Table 3. The first column reports results for hourly wages. The first row reports difference-in-differences estimates, which show no significant change in hourly wages as a result of the mandate. The second row reports the results of multivariate analysis that control for other characteristics that might affect labor market indicators. These results show an insignificant 0.5% decrease in

hourly wages for workers 65-69 relative to workers 40-64 after the introduction of the MSP. Other variables (unreported here) have the predicted effects on wages. Male workers earn more than females, blacks and Hispanics earn less than whites, and experience and schooling have positive effects on wages.

The Heckman sample selection corrected estimates are reported in the third row. The results are almost identical to those from the standard regression and the coefficient on the inverse Mill's ratio is insignificant, suggesting that there is not much selection bias in observed wages.

The second column of Table 3 reports changes in the percent of individuals 65-69 employed relative to individuals 40-64. In uncontrolled analyses, we observe a statistically significant 3.6% decrease in the percentage of people age 65-69 employed after MSP, relative to people 40-64. In the multivariate analysis (second row of the third column of Table 3), the gap widens to 4.5%, consistent with the simple time series analysis (uncorrected for serial correlation) reported above.

Finally, looking at labor force participation rates in the fourth column of Table 3, the uncontrolled estimate shows a significant 3.8% decrease in labor force participation for people 65-69 after the introduction of the mandate in comparison to people 40-64 years of age. Again, the gap widens to 4.7% in the multivariate analysis (uncorrected for serial correlation).

iii. Comparing Wages, Employment, and Participation across Demographic Groups

The multivariate analyses suggest that the MSP legislation affected the employment and labor force participation of older people, but the time series analysis

suggests that serial correlation may bias these results. To avoid these problems, we next compare outcomes post-MSP for groups with initially higher and lower rates of health insurance coverage in the under 65 population. The effects of MSP should be concentrated in those groups with the highest rates of health insurance coverage for those under 65 prior to the mandate.

The probability of holding health insurance through an employer varies significantly by the demographic characteristics of the population. Table 4 breaks down the percentage of people 40-64 holding employer provided health insurance in 1981 by a variety of demographic characteristics. We focus on four sets of characteristics: race, educational status, industry, and state of residence. Although sex is highly correlated with insurance coverage, we do not use it as a comparison variable because of the confounding effects of changes in the behavior of successive cohorts of women.

To investigate whether members of groups with higher initial health insurance coverage rates were more strongly affected by MSP we incorporate a third level interaction by demographic characteristics of the population into the regression:

$$\ln W_{it} = \beta X_{it} + \gamma Group_i + \alpha mandate_i + \pi mandate_i * demo_{it} + \tau Group_i * demo_{it} + \delta mandate_i * Group_i * demo_{it} + \epsilon_{it} \quad (8)$$

Where $demo_{it}$ is equal to 1 if individual i belongs to a specified demographic group at time t .

The results from these estimates are presented in Table 5². The first row compares whites versus non-whites. Whites have slightly higher employer coverage rates and hence

² A complete difference-in-difference-in-differences of means is shown for the hourly wages of whites vs. non-whites in Appendix Table B.

are potentially more affected by the MSP legislation. Our results show no such pattern. Instead, we see a slight increase in the wages, employment and labor force participation for the test group (whites over 65) over the period surrounding the mandate.

The second row compares those with a more than high school education to those with a high school education or less across age groups. Insurance coverage rates increase with education. Again, however, we see little or no change in the hourly wages, employment and labor force participation rates for the test group (more educated workers over 65) in the period surrounding the MSP legislation.

The third and fourth rows compare those in industries with high rates of insurance coverage to those in industries with low rates of coverage and those in states with high rates of insurance coverage to those in states with low rates of insurance coverage. Again, we find insignificant results, with the results for wages in high insurance states in the opposite direction predicted by theory.

Finally, we combine these demographic characteristics into a single indicator of health insurance propensity. Using 1981 data, we estimate a probit model using these four demographic characteristics of the population under 65 (race, education, industry, and state) to predict the probability of holding health insurance. We then apply the coefficients of this model to subsequent years of data and to the population above and below 65 to generate an individual propensity to work in a firm that offered health insurance prior to the MSP. We then use this propensity as the group indicator in models of wages, employment and labor market participation (we exclude industry in the analysis of labor force participation). We use this predicted propensity, based on data for those under 65,

in order to eliminate the effects of changes in the correlation between demographic characteristics and the propensity to hold health insurance that might have occurred as a consequence of the MSP. The results are reported in the last row of Table 5. Once again we see no significant changes in wages, employment, or labor force participation.

In sum, consistent with the time series analysis corrected for serial correlation, these results show no evidence that the effects of the legislation on labor market outcomes are concentrated in those groups most likely to have held health insurance.

We next examine whether the legislation led to changes in the structure of employment of older workers that would enable employers to avoid this tax.³

V. Tax Avoidance

Many firms do not offer health insurance or offer it only to a subset of their employees. Only about 65% of American workers under 65 received health insurance through their employers in 1986. Among full-time workers, 80% received health insurance through their employer. Among part time workers, 42% received health insurance through their employer.⁴ Of the 37 million non-elderly Americans without health insurance in 1986, 49% were employed at firms that offered no health insurance. For employees of such firms, MSP would be expected to have no effect at all.

Under the Medicare as Secondary Payer mandate, older workers would have an incentive to shift toward jobs that do not include health insurance coverage. These shifts could include a shift toward part-time (non-health-insurance eligible) employment for

³ We also compare workers 65-69 not self-employed to those self employed since MSP should not have affected the self-employed. Again we find no statistically significant difference between labor market indicators of the self-employed versus the not self-employed.

⁴ Employee Benefit Research Institute, Databook on Employee Benefits, p.179.

older workers, a shift to smaller firms that are exempt from the Medicare mandate, and a shift toward employment sectors where health insurance is not normally provided.

i. Hours Worked

One way to avoid MSP is to have workers reduce their hours below the threshold for employer-sponsored coverage⁵. Note that such workers would also lose the benefits of employer-sponsored coverage relative to Medicare as described above. We use the methods described in Section IV above to examine hours worked and the propensity of workers to be employed part-time rather than full-time. The results are described in Table 6.

Column one of Table 6 reports the correlation between hours worked per week and the MSP legislation. In the uncorrected estimates, hours worked per week decreased by 0.44 hours, or roughly 26 minutes, for workers 65-69 relative to workers 40-64 after the mandate. This change is significantly different from zero at the 10% level. The regression adjusted results, reported in the second row, show a slightly greater, and more significant, 0.75 hour per week decrease in hours worked by workers 65-69 compared to 40-64 years olds after the introduction of the mandate. The sample selection corrected results, however, show an insignificantly positive change in hours worked of 0.13 hours per week. The coefficient on the inverse Mills ratio is strongly significant, suggesting that there may be some selection bias in our data on hours worked.

The next five rows of Table 6 report results for the demographic groups included in the analysis in Table 5, as well as for the predicted health insurance group. We observe

⁵ Hours worked might increase rather than decline as a consequence of the mandate. Health insurance has a fixed, per worker; cost so increasing hours reduces the hourly cost of providing health insurance benefits Cutler and Madrian (1993).

a strongly significant decline of 1.8 hours a week for the test group (more educated workers 65-69) after the mandate relative to the control group. The results for other groups are generally small, mainly negative, and always insignificant. Combining these demographic characteristics, and predicting health insurance coverage for older workers we see a small and insignificant increase in hours per week for those individuals more likely to hold health insurance after the introduction of the mandate.

The second column of Table 6 repeats these analyses using a dichotomous indicator of part-time/full-time status. We check to see whether changes in hours can be accounted for by a shift in employment from full time to part time work. For all workers we find no significant shift from full to part-time status. For subgroup comparisons, we generally observe small and insignificant shifts toward part-time status. We do, however, observe a 7% shift from full-time to part-time status for those with more than a high school degree versus a workers with a high school degree or less.

In sum, these results provide little evidence in support of the hypothesis that changes in hours worked have been a means of escaping the mandate.

ii. Firm Size of Employment

The MSP legislation exempted firms with twenty employees or fewer. Such firms were not required to provide health insurance for their older workers, regardless of whether the other workers at the firm had health insurance or not. By shifting employment to small firms, older workers could avoid the MSP tax. We expect to see a shift of workers toward these firms.

To test these hypotheses we use 3 samples from the May CPS, which contains

information on firm size. The 1979 and 1983 May CPS samples are used to examine the pre-MSP environment sample and the 1988 May CPS is used as a post-MSP sample. Unfortunately the CPS measures firm size using “less than 25 workers” as a measure instead of less than 20 workers. Our measure of the effect of MSP on employment may be biased slightly by this difference in wording. We compare the percentage of workers employed in firms with 25 or fewer workers before and after the MSP legislation and contrast the change with that for workers under 65. We expect the change in firm size of employment to be greatest for full time workers, because part-time workers in large firms are less likely to be offered health insurance. Table 8 provides the results of this analysis.

Employment across firm size remained almost constant for all employees and for full-time employees. To confirm this, we divide firm size into two categories, 25 or fewer employers and greater than 25 employees and use a difference-in-differences estimator to test whether there is any deviation from larger to smaller firms not observed in the means. These results are reported in Table 9. Once we control for changes in the distribution of workers under 65, we find no significant movement towards smaller firms. We then use a difference-in-differences-in-differences estimator to investigate whether full-time workers were more likely to shift to employment in small firms. Again we find that there were small and statistically insignificant movements away from larger firms for full-time workers relative to part-time workers (Table 9).

Overall, these results suggest that little of the effect of the MSP legislation was offset by changes in the firm size of employment.

iii. Industry of Employment

Firms that do not offer health insurance to any of their employees are not affected by the MSP legislation. Another way to avoid the effects of the legislation would be for older workers to shift toward employment in such firms. One characteristic of firms that do not offer health insurance is that they are small. The results above show very modest effects of MSP on the firm size of employment of older workers. A second characteristic of firms that do not offer health insurance is that they are concentrated in a small number of industries. We examine the industry structure of employment of older workers to investigate this possibility.

We characterize each industry of employment by the percentage of workers 40-64 that held health insurance in that industry in 1981. We then compute the change in the average industry-level health insurance coverage rate for older and younger workers before and after the MSP⁶. We calculate the change in the percentage of workers holding health insurance in each industry before and after the mandate for workers 65-69 compared with workers 40-64. The results are reported in Table 10. We find that for workers 65-69 the average health insurance level in their industry of employment increased over the period where MSP was introduced relative to the average health insurance in the industries of workers 40-64. That is, workers 65-69 were relatively more likely to be in industries where the probability of holding health insurance was higher after MSP than before.

Finally, we combine the results of the analyses above. If MSP leads to tax avoidance, we would expect workers who are Medicare eligible jobs to shift towards jobs

⁶ We repeat this analysis in multivariate regressions, to control for other changes in the characteristics of the working age population, and apply sample selection correction techniques as described above but the results do not change significantly.

that are less likely to be MSP eligible (e.g., jobs that do not usually include employer-sponsored health insurance). To test this hypothesis, we examine the distribution of workers who are employed full time, work 20 hours a week or more and who have jobs in industries with high levels of health insurance coverage. We use the same difference-in-differences strategy employed above to test whether there were any changes in the distribution of such workers. We find a significant 6% decrease in the number of workers 65-69 in this category after the mandate relative to workers 40-64. The results are reported in Table 7. We extend this analysis by contrasting highly educated workers with less educated workers and white workers with black workers as in Table 6. We find a small, but significant, positive effect for white workers relative to non-white workers. We find a much larger, significant negative effect on the propensity of older, more-educated workers to hold such jobs relative to less-educated workers and younger workers. These results are also presented in Table 7.

In general, these results suggest that the MSP led to modest, but not substantial, changes in the structure of the labor market.

VI. Tax Compliance

The MSP change in payment rules was expected to generate substantial savings to Medicare. The Office of Management and Budget estimated that the rules would save the Medicare program about 1/2 of 1% of Medicare expenditures in each year (\$306 million in 1983, \$393 million in 1984, and \$450 million in 1985 (Executive Office of the President, Office of Management and Budget, 1983). Subsequently, the MSP program has been expanded to include workers eligible for Medicare benefits because of disability or End

Stage Renal Disease. The previous sections suggested that the MSP had relatively few labor market effects. In this section, we examine whether this lack of effect was due to lack of compliance with the MSP.

Problems of compliance have bedeviled the MSP program. Prior to 1989, enforcement of the MSP rules depended on the private insurers who acted as intermediaries for the Medicare program⁷. These intermediaries, and Medicare providers, were supposed to identify patients who were covered by Medicare and also held private insurance coverage. Various GAO studies suggest that this method of identifying people who should have been subject to the MSP rules was very ineffective (GAO 1987, 1993, 1995).

We examine compliance with the MSP provisions in two ways. First, we check to see whether provision of employer-sponsored health insurance coverage to workers over 64 increased after passage of the MSP, relative to coverage for workers under 65. Although there were increases in employer-sponsored health insurance for full time workers over 64 relative to full time workers under 65 between 1980 and 1982, there was almost no increase between 1982 and 1986 (Figure 2). If there were no tax avoidance effects of the MSP, health insurance coverage rates for workers 65-69 should have increased to approach coverage rates for workers under 65 (except for those employed in firms with 20 or fewer workers) under the legislation. The continuing substantial gap since MSP suggests that compliance may be a problem.

⁷ Under OBRA 1989, the Health Care Financing Administration, which administers Medicare, was permitted to match data contained in IRS and Social Security Administration files in an attempt to identify people who might have held private insurance. The Federal Court invalidated that provision in 1995.

Second, we compare predicted savings for the MSP with those identified in our data. Using our CPS samples we can estimate savings by examining how many individuals age 65 and older report employer-sponsored insurance benefits. Under MSP Medicare should no longer provide primary coverage for those individuals who receive such benefits.

In the 1985 Current Population Survey, 3.01% of individuals 65 and older claimed employer provided coverage. This implies that in 1985 Medicare should not have been providing primary health insurance coverage to approximately 3.01% of the population 65 and older. In 1985, per capita Medicare costs for the population 65-69 averaged \$1624. Given a per capita cost of \$1624 (taken from Table 1) and a population of 29 million over 65 in 1986 (U.S Bureau of the Census), MSP should have saved Medicare \$1.4 billion a year. This estimate is roughly 3 times as high as the savings estimated by the Office of Management and Budget. Furthermore, the OMB estimate also includes savings from the spousal provisions of the MSP legislation, suggesting that savings collected from workers themselves were below \$450 million⁸. These results suggest that fewer than 1/3 of people with employer-sponsored health insurance complied with the MSP.

The MSP legislation was not just intended to require that existing employer-sponsored coverage become primary to Medicare. It was also intended to encourage older workers to take advantage of such coverage. This incentive is most similar to those envisioned in current proposals to minimize crowd-out in new insurance programs.

Our evidence suggests that the MSP was entirely unsuccessful in this latter goal.

⁸ Note that the \$450 million figure suggests savings per person with health insurance of \$515, 1/3 of the cost of the average employer-sponsored health insurance policy in that year.

Employer-sponsored health insurance coverage for workers over 64 did not increase as a consequence of the MSP. We can predict what percentage of workers over 64 would have received health insurance benefits through their employers if workers and employers had treated those over 64 like workers under 65 employed in similar jobs. Using the demographic and job characteristics of workers under 65, we predict the probability of holding health insurance for those over age 65. We can use this predicted insurance estimate to assess how much MSP would be saving Medicare if health insurance coverage for workers over and under 65 was comparable. We find that, given their job and demographic characteristics, 11.4% of workers 65-69 in 1986 would have held employer-sponsored health insurance if they had been under 65. Based on these percentages, and the populations reported above, Medicare would have saved \$5.9 billion if the MSP had been fully enforced (and had no effects on employment). These estimates are 10 times larger than Medicare's actual savings from the MSP.

Conclusions

Legislators are rightly concerned about limiting insurance program benefits to those most in need of them. Provisions to limit such benefits by requiring potential recipients to exhaust other potential sources of insurance before turning to government programs, however, have potentially serious unintended consequences. If enforced, they may reduce the wages and employment of affected groups relative to those who cannot find other sources of insurance coverage.

Our results suggest that in the case of the MSP, the first such attempt to "crowd-in" insurance benefits, these particular undesirable consequences did not occur. We do

not find any evidence that this tax reduced the wages of workers over 64. We find slightly more evidence that the MSP reduced employment in this group.

This result should not, however, encourage the use of such “crowd-in” provisions. When we examine the reasons for this lack of evidence of tax incidence, we find that the effects of the new mandate were muted, in part, by tax avoidance. The mandate appears to have reduced full-time employment among older workers. These reductions in hours made fewer older workers eligible for employer-sponsored health insurance benefits.

Most important, the mandate did not actually accomplish much of what it set out to do. Even evaluated using the narrowest definition of its purpose, compliance with the mandate was only about 1/3. Using a broader definition of compliance, the rate drops to under 10%.

Why is compliance so low? The fragmented nature of the U.S. health insurance system means that it is almost impossible to identify people with private insurance coverage using standard administrative records. HCFA had to rely on insurance intermediaries, providers, employers, and older workers to identify those with employer coverage. These groups, however, had no incentive whatsoever to identify those who had to comply with the mandate.

This difference in compliance helps explain the sharp contrast between these results and those of Gruber’s study of the incidence of mandatory maternity benefits (Gruber, 1994). That study found that a female-worker-specific insurance mandate, equivalent to a tax of 2-4%, led to a decline in the wages of affected women of more than 4%, but had little effect on labor supply⁹. In the case of the maternity benefit, pregnant

⁹ For example, the cost of maternity benefits for a married female age 30-39 is equal to 3.5% of wages.

women, and their health care providers, had considerable incentive to require that their employers comply with the mandate.

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Table 1
 Medicare Expenditures and Estimated Cost of Medicare as Secondary Payer
 Legislation to Employers

Per Capita Medicare Expenditures ¹	Average annual earnings for workers 65-69 with employer- sponsored health insurance	Average annual earnings for full-time workers 65-69	Average annual earnings for all workers 65-69	H. I. costs as a share of earnings – workers 65-69 with health insurance	H.I. costs as a share of earnings - full-time workers 65-69	Health insurance costs as a % of wage and salaries – all workers ²
1980 905	12680	9374	6480	0.071	0.031	0.061
1981 1088	13106	10257	7113	0.083	0.038	0.065
1982 1290	15664	12369	8372	0.082	0.039	0.071
1985 1624	18749	15096	10172	0.087	0.037	0.071
1986 1714	20907	16045	10978	0.082	0.039	0.074

1. Estimates from Waldo et al., 1989 adjusted for rate of growth in Medicare per-enrollee expenditures.

2. Levit, Freeland, Waldo 1989.

Figure 1

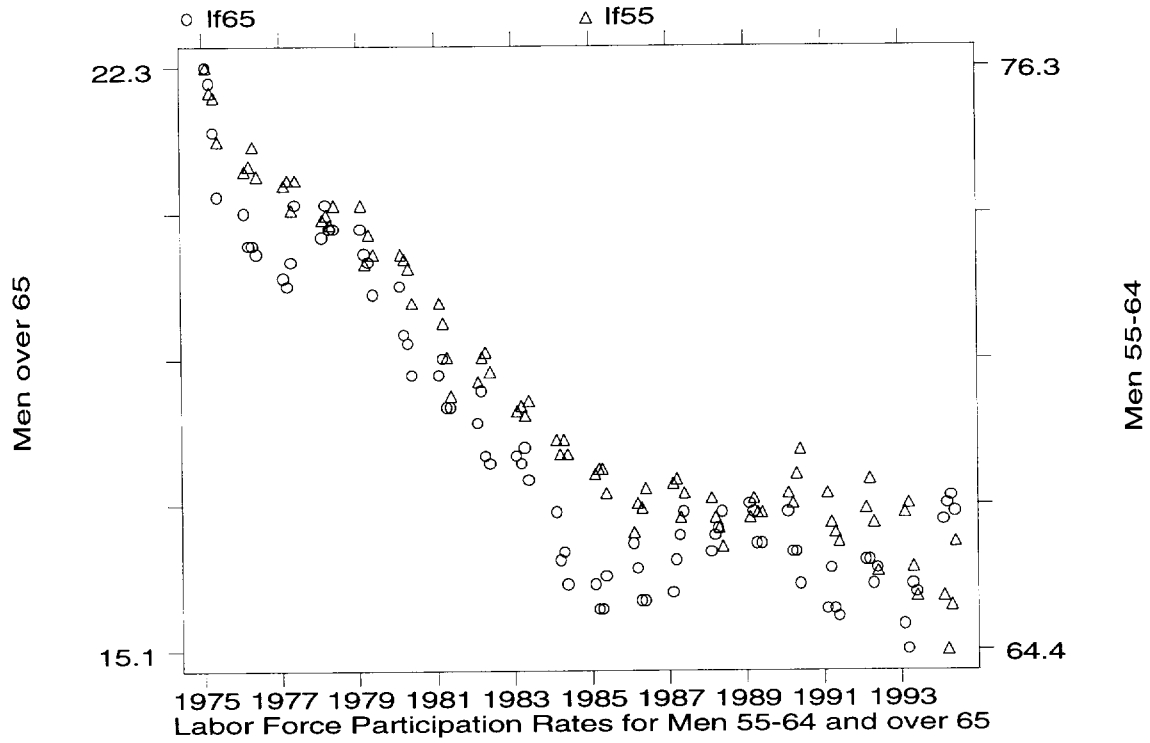


Table 2
Time Series Analysis

LFP 65+	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5	Spec 6
Constant	-9.91* (3.83)	21.79* (0.19)	13.08# (6.88)	16.32* (4.9)	21.97* (0.71)	21.78* (5.66)
LFP 55-64	0.41* (0.05)		0.11 (0.09)	0.003 (0.07)		0.003 (0.074)
Time		-0.16* (0.01)	-0.13* (0.02)		-0.19* (0.04)	-0.19* (0.04)
Time Squared		0.001* (0.0001)	0.001* (0.0001)		0.001* (0.0003)	0.001* (0.0003)
Cochrane-Orcutt Adjusted MSP				Yes	Yes	Yes
	-1.02* (0.33)	-0.97* (0.24)	-0.87* (0.26)	0.09 (0.36)	-0.06 (0.35)	-0.06 (0.36)
D-W Statistic	0.46	0.54	0.56	2.18	2.03	2.03
Adj. R-Squared	0.86	0.92	0.92	0.00	0.40	0.39

Standard errors in parentheses.

Table 3
Differences-in-Differences Estimation of Labor Market Effects of the MSP

	Hourly Wages	Employment Rates	Labor Force Participation
Difference-in-differences (pooled sample)	0.016 (0.019)	-0.036*** (0.007)	-0.038*** (0.007)
Regression Adjusted	-0.005 (0.016)	-0.045*** (0.007)	-0.047*** (0.007)
Sample Selection Corrected	-0.003 (0.005)	--	--

Pre-MSP sample 1980-1982 CPS relative to post-MSP sample 1985-1986 CPS. Analyses compare the difference in the changes for 40-64 year olds pre- and post-MSP to the changes for 65-69 year olds pre- and post-MSP.

Wage analysis includes only workers.

1. Standard errors in parentheses.
2. Regression adjusted estimates include sex, experience and its square, race, education and year dummy variables.

Table 4
 Percentage of Workers claiming Employer-Provided Health Insurance, age 60-64 vs. 65-69: 1980 and 1986 March CPS

YEAR AGE	1980		1986	
	60-64	65-69	60-64	65-69
All	32.7	9.8	30.8	9.9
Men	46.9	14.3	42.3	13.9
Women	20.7	6.3	21.3	6.6
White	33.1	10.2	31.4	10.2
Non-White	28.9	6.9	26.4	7.3
> high school	43.6	16.3	42.2	16.4
<= high school	29.4	8.3	26.8	8.0
High insurance industry	68.6	34.9	81.8	59.5
Low insurance industry	25.8	8.2	20.7	7.1
High insurance state	36.4	11.0	33.9	10.5
Low insurance state	27.4	8.2	25.5	8.8

Table 5
Difference-in-Differences-in-Differences Estimation on Labor Market Affects of MSP

		Hourly Wages	Employment Rates	Labor Force Participation
White vs. Non-White	D-in-d-in-d	0.160 ** (0.064)	0.015 (0.237)	0.019 (0.023)
	Regression Adjusted	0.189** (0.051)	0.014 (0.024)	0.017 (0.233)
More than high School vs. high school or less (>HS =1)	D-in-d-in-d	-0.023 (0.040)	-0.0009 (0.016)	-0.002 (0.016)
	Regression Adjusted	0.021 (0.034)	0.016 (0.017)	0.017 (0.016)
High Insurance Industry	D-in-d-in-d	0.064 (0.042)	---	---
	Regression Adjusted	0.019 (0.033)	---	---
High Insurance State	D-in-d-in-d	-0.016 (0.039)	-0.009 (0.015)	-0.002 (0.014)
	Regression Adjusted	-0.079** (0.031)	-0.007 (0.015)	0.003 (0.015)
Predicted Health Insurance	Regression Adjusted	0.031 (0.072)	0.050 (0.055)	0.170 (0.448)

March CPS. Analyses compare the difference for members of the indicated group in the change between outcomes for 40-64 year olds pre- and post-MSP and the change in outcomes for 65-69 year olds pre- and post-MSP to the change for members of the control group.

1. Standard errors in parentheses
2. Regression adjusted estimates include sex, experience and its square, race, education, industry, and year dummy variables.

Table 6
Hours Worked and the MSP Legislation

	Hours worked— all workers	% working full-time vs. part-time
difference-in-differences	-0.439* (0.335)	0.004 (0.008)
regression adjusted	-0.749** (0.314)	-0.004 (0.008)
sample selection corrected	0.133 (0.080)	---
d-d-d:		
White vs. Non-White	0.098 (10.47)	-0.016 (0.021)
>High School vs. <=high school	-1.836** (0.678)	-0.071** (0.018)
High Insurance Industry	1.279* (0.687)	-0.007 (0.013)
High Insurance State	-0.572 (0.840)	0.011 (0.011)
Predicted Health Insurance (regression adjusted estimate)	1.018 (1.467)	-0.051 (0.038)

March CPS. Analyses compare the difference for members of the indicated group in the change between outcomes for 40-64 year olds pre- and post-MSP and the change in outcomes for 65-69 year olds pre- and post-MSP to the change for members of the control group.

1. Standard errors in parentheses

2. Regression adjusted estimates include sex, experience and its square, race, education, industry, and year dummy variables.

Table 7
Changes in Jobs More Likely to Hold Health Insurance:

dependent variable:	full-time*20+hours*high insurance industry
difference- in -differences	-0.59** (0.005)
ddd: whites vs. non-whites	0.036** (0.016)
ddd: > high school vs. high school or less	-0.123** (0.012)

March CPS. Analyses compare the difference for members of the indicated group in the change between outcomes for 40-64 year olds pre- and post-MSP and the change in outcomes for 65-69 year olds pre- and post-MSP to the change for members of the control group.

1. Standard errors in parentheses

Table 8
Employment by Firm Size

	1979		1983		1988	
	<25	>=25	<25	>=25	<25	>=25
% Employment 40-64	4.8	95.2	5.9	94.1	1.7	98.3
% Employment 65-69	6.8	93.1	5.8	94.3	4.8	95.2
% FT Employment 40-64	4.4	95.6	5.6	94.4	1.6	98.4
% FT Employment 65-69	3.1	96.8	6.7	93.3	3.9	96.0

May CPS 1979, 1983, 1988.

1. Rows may not sum to 100 due to rounding.

Table 9
Changes in Employment by Firm Size

	Large firms (>24 employees) vs. Small firms (<25)
difference in differences	-0.008 (0.029)
d-d-d (full time/part time)	-0.087 (0.128)

1. Standard Errors in Parentheses.

Figure 2

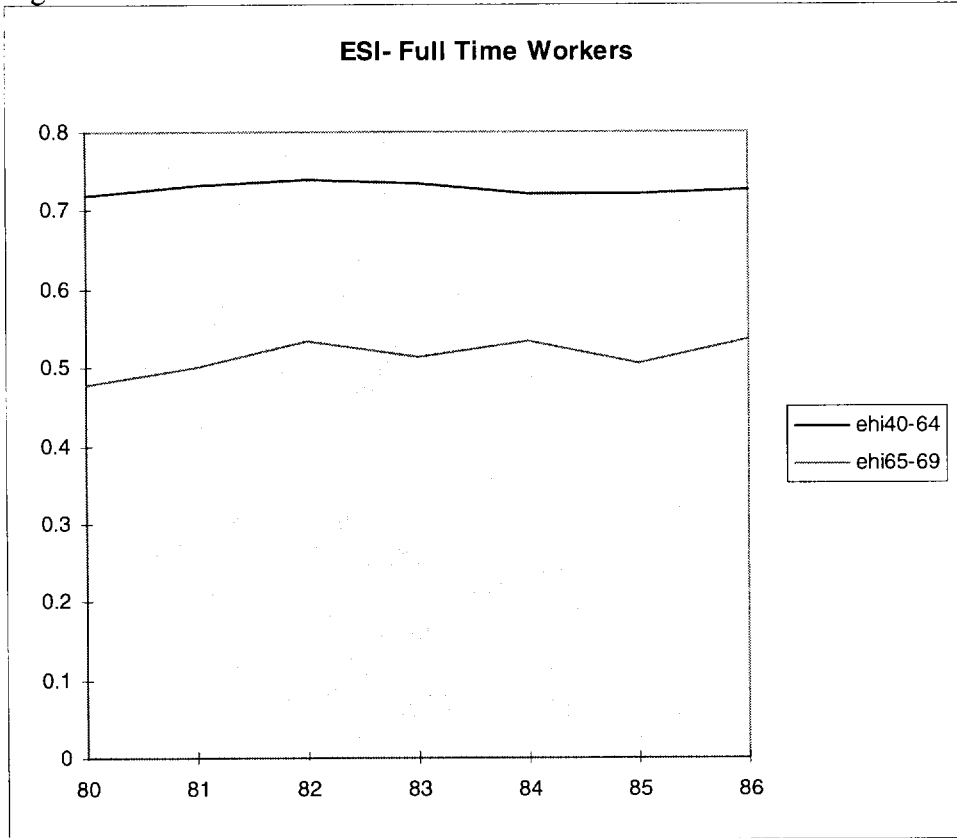


Table 10
Change in Mean Health Insurance by Industry

Dependent Variable	Mean Health Insurance Coverage in Industry
D-in-D	0.027 (0.005)

Analysis compares the change in the mean rate of health insurance coverage in the industry of employment for workers 40-64 and for workers 65-69 pre-and post-MSP. Mean rate of health insurance coverage is measured in 1981.

1. Standard errors in parentheses.

Appendix Table A
Means for Hourly Wages and Hours Worked Per Week

Year	Obs	Mean Hourly Wage	Mean Hours Worked
1980	52132	6.34 (7.24)	26.81 (21.31)
1981	52157	6.98 (6.91)	26.61 (21.12)
1982	47145	7.79 (17.49)	26.26 (21.11)
1985	47152	9.18 (10.10)	26.49 (21.16)
1986	45820	9.68 (11.47)	26.79 (21.14)

1. Standard deviations in parentheses

Appendix Table B

Difference in difference in difference estimation

test group: people age 65-70

control group: people age 40-65

dependent variable: ln(hourly wage)

demographic characteristics: whites versus non-whites

test						
race, year	obs	mean	delta non-white	delta white	dd	
1,0	450	1.656 (0.705)	0.183 (0.905)	0.291 (1.042)	-0.108 (1.380)	
0,0	474	1.364 (0.582)				
1,1	456	1.948 (0.767)				
0,1	422	1.547 (0.693)				ddd 0.160 (1.836)
control						
race, year	obs	mean	delta non-white	delta white	dd	
1,0	18295	1.948 (0.602)	0.311 (0.835)	0.259 (0.875)	0.051 (1.209)	
0,0	2977	1.721 (0.576)				
1,1	18763	2.207 (0.635)				
0,1	2816	2.032 (0.605)				

Standard Errors in parentheses.

Source: CPS March 1981-1986.