

THE EFFECT OF OLD AGE
ASSISTANCE ON RETIREMENT

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ABSTRACT

Researchers have devoted considerable attention to analyzing the impact of Social Security on retirement, with mixed findings. However, Old Age Assistance (OAA), a means-tested program established at the same time, dwarfed Social Security until the 1950s and coincided with the early decline in elderly participation. In addition, OAA benefit levels were determined by the states - a key source of policy variation that is missing in the case of Social Security. I estimate the relationship between OAA benefit levels and elderly labor force participation using individual data from the 1940 and 1950 Censuses. The effect of OAA is found to be strong and implies that participation would have risen slightly instead of falling if benefits had not been raised during the 1940s. I also present evidence against the endogeneity of state benefit levels.

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The labor force participation of older men has been falling for several decades. While there is some controversy over whether the decline began as early as the late 1800s or as late as the late 1930s, the decline since the 1930s has been dramatic. The labor force participation rate of men 65 and over fell from 54.0% in 1930 to about 19.3% in 1980.¹ Economists have devoted considerable attention to trying to explain the trend towards earlier retirement over recent decades – mainly since the 1970s. Much of the focus has been on Social Security, but many papers have found it has a small or negligible role.² Other researchers have argued that the proliferation of defined benefit pension plans create strong incentives for older workers to withdraw from the labor force.³

However, while Social Security benefits and private pensions are the main source of income for the elderly today, another public transfer program dwarfed Social Security before 1950. Old Age Assistance (OAA) was a means-tested program for people 65 and older established by the same 1935 legislation that created Social Security. By 1940, 22% of the aged population was receiving OAA – an extremely high recipiency rate by the standards of today’s welfare programs.⁴ Social Security payouts began to exceed those from OAA only during the 1950s.⁵ Thus, the heyday of OAA coincides with the early stages of the modern decline in elderly labor force participation and may have played a significant role.

In later years OAA gradually shrunk and was replaced in 1974 by the current Supplemental Security Income (SSI) program. The scope of SSI is not nearly as broad as Social Security, but SSI remains the primary source of support for the poorest elderly today. However, lacking studies of SSI’s impact on labor force participation, little can be said about the potential consequences of

¹ Parsons (1991), from Durand (1948).

² Hurd and Boskin (1981) is notable in finding a substantial effect of Social Security on retirement using data from the early 1970s. Lumsdaine and Wise (1994) concluded, however, that most of the large literature in the 1980s "attribute only a modest portion of the early retirement trend to the effect of Social Security provision."

³ Kotlikoff and Wise (1985, 1987), Stock and Wise (1990).

⁴ In 1994, by comparison, 4.5% of the population aged 65 and over received Supplemental Security Income, and 12.8% of the population 19 and under received Aid to Families with Dependent Children.

⁵ Lumsdaine and Wise (1994) reported that Social Security recipiency among those 65 and over grew from about 20% in 1940 to 60% in 1950 and 90% in 1960, while the replacement rate fell during the 1940s to 20% in 1950 and rose to 30% in 1960. Pension coverage rose from about 24% in 1950 to 40% in 1960.

recent retrenchments in the SSI program.^{6,7} It is difficult to predict the extent to which cuts in eligibility or benefits would be met by increases in labor supply among potential recipients, rather than reductions in elderly income and/or increases in community and family support.

A distinctive feature of OAA was that states set benefit levels. In contrast, Social Security and SSI, the other social insurance programs for the elderly, are federally administered, which makes identification of behavioral responses difficult.⁸ The response to changes over time in program rules may be confounded with other factors that influenced labor supply. That may explain Moffitt's (1987) findings that much of the time series correlation between rising Social Security benefits and rising retirement rates appears spurious.⁹ Furthermore, everyone faces the same rules at a point in time, which makes the variation in actual benefits across individuals problematic. As Bound (1989) noted, Social Security benefits are a positive but declining function of past earnings. This makes it difficult to identify whether a high replacement rate or low current earnings, which are likely to be correlated with low past earnings, are driving observed retirement behavior.¹⁰

Studying OAA makes it easier to understand how benefit levels – which varied across states at a point in time and also within states over time – are related to changes in labor supply. The cross-state variation in OAA benefits also makes it possible to distinguish its impact from that of the early Social Security program. This strategy is quite different from the structural modeling approach that many papers use to analyze retirement.¹¹ Structural estimates can be used to make detailed predictions about a wide range of policy changes; however, the results depend crucially on

⁶ Research has focused on the determinants of SSI reciprocity, as in McGarry (1996) and Yelowitz (1996).

⁷ The 1996 welfare reform made noncitizens ineligible for SSI. Another 1996 proposal to transform federal SSI expenditures into block grants for states was not adopted, but portends future pressure for cuts in eligibility or benefits.

⁸ About half of states supplement SSI, but the median monthly supplement is less than \$50.

⁹ Stewart (1995), on the other hand, found a significant relationship using time series data. Most other studies have employed cross-sectional or longitudinal data.

¹⁰ In the case of SSI, eligibility and benefits depend inversely on current income and wealth, which might be endogenously determined with current labor supply.

¹¹ The most recent example of the highly structural approach to modeling and estimating the retirement decision is Rust and Phelan (1997).

identifying the underlying behavioral responses. The alternative approach of focusing on reduced form estimates of the response to policy changes has yielded insights into a range of contemporary public programs.¹²

In sum, the aim of studying Old Age Assistance is twofold: understanding the role of OAA in explaining early retirement trends, and exploring how means tested benefits affected retirement behavior in the past. The present day applicability of these labor supply estimates cannot be directly inferred from this work. Major changes in the health status, wealth, and annuitization of post-retirement income make for very different living and working conditions for older individuals today. Nonetheless, research on OAA offers a unique and potentially relevant perspective.

My approach in this paper is to use the rich individual level data available from the 1940 and 1950 Censuses to estimate the impact of OAA benefit levels on labor force participation. Parsons (1991) also analyzed the impact of OAA. He estimated that 50% of the increase in retirement rates between 1930 and 1950 could be attributed to OAA. By including 1930, however, Parsons was compelled to use aggregated state level data because individual records from the 1930 Census are not available. Using individual level data instead makes it easier to control for personal characteristics correlated with labor supply and to study how OAA affects individuals with different characteristics. The Census data is still limited, though, because it does not include information on actual or potential OAA benefits. The available OAA data are average state level benefits.¹³ Nevertheless, controlling for individual covariates, state and year fixed effects, and state level measures of economic prosperity, I estimate a strong negative effect of OAA. If OAA benefits had not been raised during the 1940s, participation rates would have risen slightly instead of falling, as strong economic growth was encouraging people to work longer.

¹² See, for example, Moffitt (1994) on AFDC and marriage, Meyer (1990) on unemployment insurance and the duration of unemployment, Krueger (1990) on worker's compensation and the duration of work absences, and Gruber (1996) on Canadian provincial disability insurance and labor force participation.

¹³ Papers analyzing the response to policy changes often use, as an independent variable, the maximum benefit available in a jurisdiction, perhaps tailored to an individual's family structure or employment history. The available OAA data is not rich enough for that approach. In the next section I explain why the average benefit does not appear to be endogenous with the dependent variable.

These results are broadly in line with Costa (1995), who estimated a sizable income elasticity of retirement at the turn of the century, also based on policy variation affecting the incentive to retire.

The rest of this paper consists of five sections. Section I describes the OAA program, Section II reports trends in labor force participation, and Section III discusses the empirical approach and data. Section IV analyzes the estimates and presents evidence against the possible endogeneity of state benefits. Section V concludes.

I. OLD AGE ASSISTANCE

This section describes OAA benefits and reciprocity rates and then discusses the available administrative data on OAA. By 1934, twenty-seven states had instituted assistance for the elderly, offering average annual benefits of \$174 to 235,000 recipients.¹⁴ The federal government took up the reins of welfare provision with the Social Security Act of 1935. Besides establishing Social Security, it mandated that each state initiate aid for the needy elderly, dependent children, and blind. By 1940, every state had set up an Old Age Assistance program. The federal government matched state benefits of up to \$40 per recipient per month with an additional 50% contribution.

OAA grew rapidly, as Table 1 shows.¹⁵ By 1940 fully 21.8% of the population 65 and over, 2 million individuals, were receiving OAA. The average nationwide benefit in 1940 was \$241, or \$737 in 1990 terms. OAA benefits were quite generous relative to 1940 per capita income of \$595.¹⁶ Benefit levels varied considerably across states, ranging from \$91 in Arkansas to \$455 in California, with a standard deviation of \$92. Reciprocity rates ranged from 8.1% in Washington DC and 11.2% in New Jersey to 50.2% in Oklahoma, with a standard deviation of 7.9%.

TABLE 1

¹⁴ *Monthly Labor Review*, 1936.

¹⁵ Appendix Table 1 details OAA benefits and reciprocity rates by state.

¹⁶ In comparison, the average aged SSI benefit was \$2724 in 1992, relative to per capita income of \$22,958.

Old Age Assistance Benefits and Reciprocity

	National average	Standard deviation across states
1940		
Annual benefit	\$241	\$92
Reciprocity rate	21.8%	7.9%
1950		
Annual benefit, 1940 dollars	\$289	\$93
<i>Increase from 1940</i>	19.7%	27.0%
Reciprocity rate	22.7%	13.4%

The average annual benefit is total annual transfers divided by number of recipients. The reciprocity rate is number of recipients divided by the population 65 and over. The standard deviations across states are weighted by state population. Source: *Social Security Bulletin*, June 1940 and June 1950.

In 1950, the national average benefit had risen 19.7% to \$289 in 1940 dollars. Most of the increases occurred shortly after the federal government raised the matching rate in 1946 to 75% for the first \$20 per month from the state and 50% for the next \$30. The correlation between the change in benefit and the 1940 level was -0.50, so states with relatively low 1940 benefits, such as Texas and Florida, generally raised benefits the most. The rate of benefit growth varied considerably across states, with a standard deviation of 27.0% – which is key for the econometric analysis in this paper. The change in benefit levels within a state between 1940 and 1950, as it is correlated with the change in labor force participation, will be used to determine the effect of OAA on labor supply.

Reciprocity should rise with benefits if benefits are to affect labor supply. In Table 2 state level reciprocity rates are regressed on log benefits, state and year fixed effects, and measures of economic activity. Benefit changes within states during the decade had a significant positive impact on reciprocity rates, with a 10% rise in benefits leading to almost a two percentage point increase in reciprocity. At the same time, growing economic prosperity – rising manufacturing

value added and farm values and declining unemployment rates – led to declines in OAA reciprocity.¹⁷

TABLE 2	
<i>The Impact of Benefits on Reciprocity</i>	
	Dependent variable: Reciprocity rate
Log annual OAA benefit	0.170 (0.071)
State manufacturing value added per capita (\$1,000)	-0.323 (0.187)
State average farm value (\$1,000)	-0.009 (0.005)
Log state per capita income	0.100 (0.103)
State unemployment rate	1.68 (0.63)
Adjusted R ²	0.752

State and year effects are included. Observations are weighted by state population. The reciprocity rate and annual OAA benefit are defined in the notes to Table 1. Standard errors are in parentheses. N=98.

Information about the people receiving OAA is available only from occasional studies in the *Social Security Bulletin*. Fisher (1946) described the characteristics of OAA recipients in twenty-one states in 1944.¹⁸ The median age of recipients was 74.1, compared to 70.3 for Social Security recipients. 53% of OAA recipients were women.¹⁹ OAA recipients, especially women, were less likely to be married than the rest of the elderly population. 9.2% of OAA recipients were nonwhite, though nonwhites accounted for 6.7% of the total elderly population.

¹⁷ The coefficient on log per capita income has an unexpected positive sign but is statistically insignificant. Sample statistics of state level covariates appear in Appendix Table 4.

¹⁸ The article does not mention which states were included in the study. These occasional studies are the only source of information on recipients because the Censuses did not ask if individuals received assistance.

¹⁹ Roughly three-quarters of elderly SSI recipients today are women, in contrast.

OAA benefit levels were determined by subtracting an applicant's income from what was called a monthly budget, or standard living requirement as a function of family size. This implies a 100% tax rate on benefits as earnings rose – a severe penalty against work. However, data on the maximum benefits were not regularly reported in the *Social Security Bulletin*.²⁰ Program generosity can instead be inferred from a state's average payout per recipient, reported monthly. Using this measure of average generosity will preclude decomposing estimates of the average treatment effect into income and substitution elasticities. A more serious problem might arise, though, because a state's average benefit is potentially endogenous. A state's average benefit can be expressed as

$$\bar{B}_s = \frac{1}{N} \sum_{i \in S} B_{si} = \frac{1}{N} \sum_{i \in S} (B_s^{\max} - Y_{si}) = B_s^{\max} - \bar{Y}_s, \quad (1)$$

where i indexes a state's OAA recipients, N is the number of recipients, B_s^{\max} is the state's maximum benefit, Y_{si} is the income of a recipient, and \bar{Y}_s is the statewide average income of recipients. The problem is that differences in \bar{B} across states will reflect not only statutory changes in B^{\max} , but also differences in recipients' income, which is a function of individual behavior. This would not cause trouble if the regression of labor force participation on average benefits includes state and year fixed effects – unless income moved differently across states. For instance, low income people in one state might have become better off relative to another state – which raises \bar{Y} and lowers \bar{B} without a change in program rules. If changes in income distribution were also correlated with changes in labor force participation, then an inconsistent estimate of the program's effect on participation would arise.²¹

²⁰ Data on maximum benefit levels were reported for eighteen states in Berman (1947) and eleven states in Berman (1949). These reported maximum levels had a negative but insignificant impact on labor force participation between 1940 and 1950.

²¹ The bias might go in either direction. If rising labor force participation raised earnings for the poor elderly, it would appear that falling benefits caused rising participation. If rising income led children to contribute more to support their parents, which induced them to retire, it would appear that falling benefits caused falling participation. The Censuses have neither complete nor comparable information on income to study changes in elderly income distribution. Instead, trends must be inferred from published data on state per capita income for

However, actual patterns of benefit levels, participation, and average income suggest that this potential source of spurious benefit changes is not a major problem. Average benefits \bar{B} rose between 1940 and 1950. If trends in income \bar{Y} influenced \bar{B} more than statutory changes in B^{\max} did, it must be that income among the poor elderly fell. However, per capita income rose substantially during the decade, as did other measures of economic activity reported in Appendix Table 4. Moreover, rising average benefits and rising state per capita income were positively correlated, so in states that grew richer overall the poor elderly would have had to grow systematically poorer, raising \bar{B} , if changes in \bar{Y} were driving changes in \bar{B} ; if not, then increases in statutory benefit levels were dominating changes in \bar{B} . Lastly, as demonstrated in Section IV, increases in per capita income and other measures of the economy were associated with *increases* in labor force participation among the elderly – which should channel through to lower average benefits. In sum, average benefits rose even while income and participation were rising. Therefore, it does not appear that the average benefit measure \bar{B} was seriously contaminated by changes in income distribution correlated with labor force participation, but rather that changes in statutory benefit levels drove benefit changes.

Another potentially important rule governs the treatment of migrants. If people retired and then chose to move to high benefit states, the effect of benefits on retirement would be overestimated. Federal law prevented states from requiring more than one year of in-state residence preceding application, but did allow them to require up to five years' residence within the last nine. The *Social Security Bulletin* (1944) noted that the great majority of states imposed the maximum requirements, which limits the extent of benefit-driven migration, though many states did reduce the requirement to one year by 1950. Furthermore, cross-state migration among the elderly was low. In the 1950 Census sample of men aged 66-75 used in this paper, 1.0% had moved to a new state in the past year. Among those, slightly more than half moved to states with lower 1950 benefits than their own. Lastly, even with a more mobile population today, Walker (1994) found

the entire population.

that differential AFDC benefits could not explain migration to neighboring states by poor young women. Therefore, it does not appear likely that OAA benefits drove migration.²²

II. LABOR FORCE PARTICIPATION OF THE AGED

This paper focuses on explaining the variation across states in labor force participation trends between 1940 and 1950. An alternative strategy would study the labor supply response to OAA's introduction in the 1930s. However, there are two reasons for emphasizing the 1940s instead. First, only state level aggregates are available from the 1930 Census. In contrast, individual records from the 1940 and 1950 Censuses make it easier to control for characteristics like age structure, education, and household composition that are likely to be correlated with labor supply and perhaps with factors affecting benefit levels. It also makes it possible to analyze the impact of such characteristics on participation and on the sensitivity of participation to OAA.

Another reason to focus on 1940 and later is because labor force participation before 1940 was measured differently. The Census used to ask whether respondents were "gainfully employed". New questions beginning in 1940 corresponded to the modern economic concept of participation. Various approaches that adjust downward the pre-1940 gainful employment series to match the later participation data are controversial and leave the series with a sharp decline between 1930 and 1940.²³ Such a decline is not surprising in light of the Great Depression, but it is difficult to know how much of the measured drop was driven by economic forces, as opposed to the statistical break in the data series.²⁴

²² An additional concern about the OAA data is that benefits sometimes fluctuated when local governments temporarily ran short of funds, especially in those states where counties contributed to OAA funding. This could make the average benefit measure a less accurate indicator of actual benefits at a point in time, and it might have reduced responsive to OAA of people in those jurisdictions. However, in her study of OAA's impact on living arrangements, Costa (1997) found that the coefficient estimate on a dummy for whether counties helped finance OAA was insignificant and small.

²³ Durand (1948) developed sex and age factors to adjust the gainful employment series. His participation rate for men 65 and over was 54.0% in 1930 and 42.2% in 1940. Ransom and Sutch (1988) made adjustments based on how questions were asked and enumerators instructed each year, though this was disputed by Moen (1987). Their participation rate was 53.9% in 1930 and 49.1% in 1937.

²⁴ In a regression with 1930 participation data, a year effect would absorb the break only if the data were

On the other hand, during the 1940s there was little change in the national labor force participation rate, which appears to make it a less promising time period to study. World War II drew or kept many older people in the labor force, although it is less clear what happened to retirement patterns after the war.²⁵ For the sample of 66 to 75 year old men used in this paper, as shown in Table 3, the participation rate was 49.7% in 1940 and 48.7% in 1950 – only a 1.0 percentage point decline.²⁶

<i>Labor Force Participation, Men Aged 66-75</i>		
	National average	Standard deviation across states
1940	49.7%	6.0%
1950	48.7%	6.2%
<i>Change from 1940</i>	-1.0	5.6

Sample: Male citizens aged 66-75, not in group quarters, from the IPUMS of the 1940 and 1950 Censuses. Labor force participants are those at work or unemployed last week. Person weights from the IPUMS make the averages nationally representative. The standard deviations across states are weighted by state population.

However, the small change in the national average masks considerable variation across states in each year and especially within states between 1940 and 1950. The standard deviation across states of the changes in participation is 5.6 percentage points. That reflects increases in participation rates of several percentage points in some North Central states, along with large declines in some New England and Southern states. Changes in participation varied a great deal within regions as well. The goal here is to understand how much of the sharp divergence in participation trends across states can be attributed to differences in OAA benefit growth.

adjusted uniformly for all states; but the pattern of the break could be correlated with labor supply behavior.

²⁵ Clague (1947) noted that unusually high levels of participation among older men following World War II still persisted in 1947, although they had receded among older women.

²⁶ Participation rates by state appear in Appendix Table 2. Census summary reports indicate that the participation rate for men 60 and over was 54.7% in 1940 and 54.5% in 1950 (Ransom and Sutch).

However, these patterns do raise concerns that benefit determination was endogenous with participation. I will discuss evidence against this hypothesis after presenting the main results.

III. EMPIRICAL APPROACH AND DATA

The empirical model in this paper will take the following form:

$$LFP_{ist} = f(\beta * \log(OAA_{st}) + X_{ist} * \gamma + X_{ist} * \log(OAA_{st}) * \delta + Y_{st} * \phi + \sigma_s * state_s + \tau_t * year_t + \epsilon_{ist}) \quad (2)$$

Equation (2) will be estimated as a probit. The index i refers to the individual, s to his state of residence, and t to the year. LFP takes a value of one if the individual participates in the labor force and zero if he does not. Labor force participation may be influenced by individual characteristics X ; time-varying state characteristics Y ; state-varying time-constant characteristics; time-varying national characteristics; and the generosity of OAA.²⁷ The use of state specific intercepts means that the effect of OAA will be identified from the variation in OAA benefits within states across years – the hypothesis being that states with a bigger increase in OAA benefits should have a bigger drop in labor force participation.

Equation (2) will be estimated on individuals from the 1% Census samples of the 1940 and 1950 Integrated Public Use Microdata Samples (IPUMS).²⁸ Elements of X include dummies for age, education, marital status, household composition, farm residence, urban residence, nativity, and race. Since income and wealth data are lacking for much of the sample, elements of Y include measures of states' economic conditions: per capita income, manufacturing production, farm values, and the unemployment rate.

The sample includes all male citizens between the ages of 66 and 75 who are not in group or institutional quarters.²⁹ Sample statistics are reported in Table 4 for 25,426 observations in

²⁷ Parsons (1991) estimated a similar relationship with state level data. Right-hand side variables were the share of full-time workers in poverty, the share of individuals aged 65+ who were 75+, the growth rate of the male population aged 25-35, the share of workers employed in agriculture, and the average farm value.

²⁸ Ruggles and Sobek (1995).

²⁹ According to the *Social Security Bulletin* (1944), twenty-six states restricted benefits to citizens.

1940 and 29,422 observations in 1950. Compared to today, elderly men were somewhat less racially mixed, more foreign born, less educated and lived more rurally. Relative to 1940, the 1950 sample was older and more educated and lived less on farms and more in SMAs.

The dependent variable will be whether someone was in the labor force last week. Labor force participation fell one percentage point, while the employment rate actually rose one percentage point.³⁰ The proportion reporting they were out of the labor force for reasons besides being unable to work rose ten percentage points, a much larger change than in participation. This trend suggests that the modern concept of retirement – retirement for leisure, or retirement as a

³¹ Most working respondents worked full-time or more, making it reasonable to focus on retirement instead of the choice of hours.

TABLE 4		
<i>Sample Means (Standard Deviations), Census Data</i>		
	1940	1950
Number of Observations	25.426	29.422
Age between:		
66-70	0.611	0.597
71-75	0.389	0.403
Married	0.707	0.734

³⁰ Labor force participation is defined as being at work, with a job but not at work, in the armed forces, or unemployed. Results with the employment rate on the left-hand side yield at least as strong conclusions about OAA, as discussed in Section IV.

³¹ People were also asked why they were not working: because they were in school, doing housework, unable to, or other. The increasing prevalence of “retirement” – not working but not because one is unable to – is not fully explained by OAA and will be the focus of future research.

Head of household	0.837	0.850
Lives on a farm	0.283	0.190
Lives in an SMA	0.458	0.508
Foreign born	0.186	0.198
Nonwhite	0.079	0.075
Years of schooling completed	7.01 (3.70)	7.29 (3.88)
0-8 years	0.803	0.745
9-11 years	0.065	0.089
12 years	0.062	0.083
13-15 years	0.033	0.037
16 or more years	0.037	0.046
Years of schooling unknown*	0	0.663
Hours worked last week	19.5 (24.8)	18.9 (23.6)
Hours worked hours>0	46.2 (14.9)	42.6 (15.9)
Labor force activity:		
In the labor force	0.497	0.487
With a job	0.460	0.470
Unemployed	0.037	0.018
Not in the labor force	0.503	0.513
Because unable to work	0.352	0.258
For another reason	0.152	0.254

Sample: of male citizens aged 66-75, not in institutional or group quarters, from the IPUMS of the Censuses of 1940 and 1950. To make the statistics nationally representative, education data are weighted by the sample line person weights, and other sample means are weighted by the person weights. * Only asked of sample line respondents in 1950.

Table 5 reports labor force participation rates of different groups within the population. Participation declined with age but was higher at all ages than today. Participation rates were higher for those who were married, household heads, farm dwellers, non-SMA dwellers, natives, and nonwhites. Participation rates increased with education, as it does today. Most of the differences in participation across groups narrowed during the decade, especially for nonwhites.

TABLE 5

<i>Labor Force Participation, Percent</i>		
	1940	1950
Labor Force Participation	49.7	48.7
Age 66-70	57.6	56.6
Age 71-75	37.3	37.1
Married	55.1	52.9
Head of household	54.0	51.8
Lives on a farm	68.2	68.4
Lives in an SMA	46.3	47.4
Foreign born	44.7	46.6
Nonwhite	53.0	48.3
Years of schooling completed		
0-8 years	47.6	45.2
9-11 years	55.4	50.0
12 years	56.9	52.0
13-15 years	56.4	56.3
16 or more years	66.4	59.2

See the notes to Table 4.

Program data appear in the *Social Security Bulletin*. The average OAA benefit divides total dollar obligations, excluding administrative and overhead costs, by the number of recipients. The CPI is used to deflate benefit levels. Additional state level data employed in the estimation appear in the *Statistical Abstract* and are reported in Appendix Table 4.

IV. EMPIRICAL RESULTS

In this section I present estimates of the effect of OAA on labor force participation and offer evidence against the potential endogeneity of state benefit levels. I also discuss the implications of the estimates for early expansions in Social Security, and I conclude by analyzing how OAA affected people with different personal characteristics.

A. Estimates of OAA's Impact

Table 6 reports a series of probit estimates of equation (2). In column (1) with no other covariates, the probit coefficient is significant and negative, demonstrating the strong negative correlation of OAA benefits and labor force participation in the raw data. Its magnitude is easier to interpret by considering the resulting prediction of aggregate participation in 1950 if benefits had stayed at 1940 levels, reported at the bottom of the table.³² The estimate in column (1) implies that labor force participation would have been 50.3% in 1950, instead of falling to 48.7%, if OAA benefits had not been raised 19.7% between 1940 and 1950 – so participation would have risen instead of falling.

Column (2) adds state and year fixed effects, which control flexibly for factors which vary across states and which influence labor force participation. The fixed effects might proxy for unmeasured individual characteristics which vary across states and for local economic conditions. The impact of OAA is now identified from changes in benefit levels within states between 1940 and 1950. The estimated fixed effects are jointly highly significant and raise the estimate of OAA’s impact, although not significantly. They raise the standard error of the estimate, which is not surprising since analysis of variance reveals that the state effects absorb 86.1% of the variation in OAA benefits, and the year effect absorbs 7.4%. Even with only 5.5% of residual variance of OAA benefits left to explain participation, the coefficient estimate remains statistically significant at better than a 99% confidence level.

TABLE 6

Probit Results

	Dependent variable: In the labor force			
	(1)	(2)	(3)	(4)
Log annual OAA benefit, no interactions*	-0.226	-0.264	-0.169	-0.188
	(0.015)	(0.062)	(0.074)	(0.085)
State manufacturing value added per capita (\$1,000)				0.687
				(0.201)

³² The probit coefficients are used to predict the probability of participation for each individual in 1950, with benefits switched to their 1940 levels. The probabilities are averaged over the sample, using person weights to make them nationally representative, yielding the predicted participation rate reported in the table.

State average farm value (\$1,000)				0.017 (0.006)
Log state per capita income				0.311 (0.121)
State unemployment rate				-0.866 (0.720)
Log likelihood (per observation)	-37875 (-0.691)	-37689 (-0.687)	-33813 (-0.616)	-33802 (-0.616)
Includes state and year effects?	No	Yes [303]	Yes [394]	Yes [267]
Includes demographic variables and interactions with OAA?*	No	No	Yes [97]	Yes [97]
Predicted labor force participation in 1950, with benefit levels of 1940[‡]	50.3%	51.1%	49.9%	50.1%
<i>Actual labor force participation in 1940:</i>			49.7%	
<i>Actual labor force participation in 1950:</i>			48.7%	

Dependent variable: the person participated in the labor force. Sample: males aged 66-75; see the notes to Table 4. N=54,848. Person weights make the estimates nationally representative. Robust standard errors are in parentheses. *

Dummies for age, education (9-11, 12, 13-15, 16+ years of school), marital status (widowed/divorced, never married), not household head (father/father-in-law of head, other relative, not related to head), farm residence, SMA residence (central city, other SMA), foreign birth, and nonwhite race. OAA is interacted with all except age.

Test statistics for the joint significance are reported in brackets. In all cases, the p-value is smaller than 0.0005.

[‡] Average over people in 1950 of their predicted probabilities of labor force participation when benefits are set at 1940 instead of 1950 levels, while no other variables change.

The fixed effects will not capture influences on participation which shift within states over time, and which could be endogenous with benefits. Therefore, columns (3) and (4) add additional regressors that are available to control for individual and state level characteristics. Column (3) includes individual level demographic characteristics such as age dummies, education, and household characteristics. The individual level controls are allowed to have different effects in 1940 and 1950.³³ More importantly, the individual variables, except for age, are interacted with

³³ Jointly restricting the coefficients to be the same in both years is rejected at better than 0.001. Coefficient estimates are reported in Appendix Table 3.

the OAA benefit, which allows the impact of OAA to vary across groups in the population. The interaction terms, which will be analyzed in more detail later, are jointly highly significant and improve the fit of the estimation considerably. With the interaction terms, the coefficient on log benefits in (3) only describes OAA's effect on individuals with the most common characteristics: eight or fewer years of schooling, married, household head, not living on a farm or in a SMA, native born, and white. Taken together, the estimates imply a slightly smaller effect on participation from the increase in OAA benefits between 1940 and 1950, which suggests that the cross-state variation in demographics is correlated with changes in benefits.

Column (4) adds controls for other state level factors which vary over time and might be related both to participation and benefits. In particular, comprehensive earnings, income, and wealth data is lacking for the sample. State level measures of economic activity can proxy for missing individual data on wages, which should raise participation; and for family income and wealth and the wage available to other family members, which should reduce participation. Column (4) includes state level economic variables for the manufacturing value added per capita, average farm values, log per capita income, and the unemployment rate. The coefficients on the first three are positive and large and indicate that states with greater gains in economic activity had smaller declines, or greater increases, in participation. For example, manufacturing value added per capita rose by 79% between 1940 and 1950; if it had not risen at all, participation would have fallen to 45.1% in 1950 instead of 48.7%, according to the estimates. It is a key finding that economic growth during the 1940s did not yet produce wealth effects that spurred earlier retirement, but apparently generated substitution effects that raised the rewards to staying in the labor force.

Adding the state level economic variables raises the estimate of OAA's impact but not significantly, so the measures of economic activity do not appear to be strongly correlated with benefit levels. The estimates in column (4) imply that, if benefits in 1950 had stayed at 1940 levels, labor force participation would have risen from 49.7% in 1940 to 50.1% in 1950. Participation actually dropped to 48.7%, so it would have been 2.9% higher without the increase in OAA

benefits. In those states with large increases in benefits – more than 50% in ten states and 33-50% in seven others – the resulting declines in participation are sizable. Therefore, OAA had a substantial impact on retirement, acting as a counterpoint to other economic forces which were encouraging people to work longer.³⁴

B. Endogenous Legislation

Endogenous benefit levels would make the estimates reported here inconsistent. OAA benefits and participation may be associated not because rising benefits induced people to leave the labor force, but instead because rising retirement rates led states to raise support levels in response. Yet, it is difficult to come up with useful and available instruments to control for potentially endogenous benefits.

An alternative is to test whether OAA is correlated with trends in labor force participation for other people who are ineligible for OAA. I estimated the same model for slightly younger men, aged 55-59. This group should not respond to OAA, but the labor market conditions they face are likely to be linked to those of older men. The hypothesis that changes in benefits drove changes in participation, and not that changes in labor market conditions led policymakers to adjust benefit levels, would be reflected in coefficients close to zero on log benefits and its interaction terms.

Estimates of a probit analogous to column (4), but with 55-59 year olds, yields a coefficient on the OAA main effect of 0.077 (0.175), slightly positive and highly insignificant.³⁵ The aggregate effect, incorporating the OAA interaction terms, also reflects no relationship between OAA and labor force participation for 55-59 year olds. These results support the hypothesis that OAA benefits were not influenced by labor market conditions.

³⁴ The qualitative results are similar if the reciprocity rate is included along with log benefits, but the variables are collinear, making it difficult to sort out their impact on participation.

³⁵ The participation rate for this group fell from 89.9% to 88.9% and would have fallen to 88.8% if not for the increase in OAA benefits, according to the estimates. The conclusions are the same for 50-54 and 60-64 year olds also, although the latter could be expected to retire earlier in response to OAA, through a wealth effect. The sample selection criteria are alike except that only those in the self-weighting subsample are included for computational ease.

The results suggest a further check on the OAA estimates. If 55-59 year olds are a reasonable comparison group for the older group eligible for OAA, then the two samples can be combined. Including the OAA ineligible allows state-year interactions to be identified separately from the effect of benefits, which controls more directly for the possibility that changes in benefits are endogenous with changes in participation. The state-year interactions account for influences on participation that varied over time within states. Changes in participation for 55-59 year olds identify the general trends in participation within states, which might have been correlated with benefit changes. Additional changes that only occur for OAA eligibles remain to identify the direct impact of OAA on participation. The strategy presumes that the labor supply of 55-59 year olds is otherwise similar to the labor supply of OAA eligibles – except for age effects (both main effects and interactions with year and state) and except for the systematic influence of OAA. The “difference-in-difference-in-differences” estimator employing within state control groups has been used to study the impact of other programs as well.³⁶

TABLE 7

Additional Specifications

	(4)	(5)	(6)	(7)
	From Table 6	55-59, 66-73 year olds	Nonwhites excluded	Dependent variable: Employed
Log annual OAA benefit	-0.188 (0.085)	-0.222 (0.162)	-0.179 (0.092)	-0.163 (0.085)
Log likelihood (per observation)	-33802 (-0.616)	-40452 (-0.485)	-30990 (-0.618)	-33612 (-0.613)
Includes state*year effects?	No	Yes [96]	No	No
Predicted labor force participation in 1950, with benefit levels of 1940	50.1%	53.1%	49.7%	48.2%

³⁶ For example, Yelowitz (1995) on Medicaid and Gruber (1994) on mandated maternity benefits.

<i>Actual labor force participation in 1940:</i>	49.7%	52.6%	49.4%	46.0%
<i>Actual labor force participation in 1950:</i>	48.7%	51.4%	48.8%	47.0%

Variations on the probit estimated in column (4). See the notes to Table 6.
(5): Includes 55-59 and 66-73 year olds. Adds fixed effects for state*year, state*age, and year*age. The demographic variables have a different effect by age group and year. Sample selection criteria are the same as for Table 6, except only people from the self-weighting sample are selected. N=83,322.
The test statistic for joint significance is reported in brackets. The p-value is 0.0001. (6): Same as (4), except nonwhites are excluded from the sample. N=50,120. (7): Same as (4), except the left-hand side variable is the employment rate, not the labor force participation rate.

Column (5) of Table 7 reports the results with state*year fixed effects. Because of limits in computing capacity, the sample is restricted to 66-73 year olds, together with the 55-59 year olds.³⁷ The state*year interactions are jointly highly significant, as are the state*age interactions, while the age*year interactions are not significant. Those results imply that cross-state differences in labor force participation varied over time and also by age, but that age-related patterns were similar over time. The coefficient on the OAA main effect increases to -0.222 (0.162) instead of declining, as would be expected if benefits were set endogenously. The OAA main effect is statistically significant only at a confidence level of 83%, but the OAA interaction terms remain jointly significant at greater than 99% confidence. The boost in the OAA coefficient carries through in the aggregate: the participation rate of 66-73 year olds fell from 52.6% in 1940 to 51.4% in 1950 but would have risen to 53.1% if benefits had not been raised. Therefore, including the 55-59 year olds in the estimation supports the conclusion of a strong effect of OAA on participation and suggests that OAA benefits were not set in response to changes in labor force participation.

C. Implications for Social Security

Researchers have had surprising difficulty connecting the tremendous growth in the Social Security program to rising retirement rates. Although the estimates in this paper are derived from

³⁷ For 66-73 year olds alone, the coefficient on the OAA main effect, analogous to column (4), is -0.212 (0.089). The estimates imply that their participation rate would have risen to 53.0% in 1950 if OAA benefits had not been

OAA, they offer a means to extrapolate to Social Security's impact on early retirement trends. Both OAA and Social Security were earnings tested income transfers with similar benefit levels until later in the 1950s, when real Social Security benefits rose 50.4%.³⁸

Still, the programs differ along other important dimensions. First, OAA was available to all elderly; Social Security covered only about 70% of workers in 1950, and expanded to almost complete coverage over the next decade.³⁹ That factor makes predictions about the resulting change in participation a lower bound. Second, OAA was completely means and wealth tested, while Social Security was only earnings tested.⁴⁰ The tighter means testing on OAA again implies that its estimated impact can be interpreted as a lower bound on Social Security's impact. A worker considering retiring and receiving Social Security might not even qualify for OAA, depending on his non-labor income and wealth. However, the ambiguity due to the average benefit measure which must be used here makes it difficult to adjust for this effect.

The estimates from column (3) were used to simulate a 50.4% increase in benefit levels. Such an increase in benefits is predicted to lower labor force participation of 66-75 year olds from 48.7% observed in 1950 to 45.7% predicted in 1960, a 6.2% decline. Rescaling the estimate by 100/70 to account for the expansion in Social Security coverage suggests a 8.8% decline. In fact, the actual participation rate dropped precipitously to 35.3%. Naturally, other factors in the 1950s, such as expanding pension coverage and increasing prosperity – which might have begun to induce wealth effects on labor supply – are likely to have influenced retirement rates. Still, because the simulation is likely to be a lower bound, it suggests that Social Security accounted for at least one-third of the decline.

raised.

³⁸ The average retiree benefit rose 10.5% during the 1940s to \$307 in 1950 (in 1940 dollars), compared to \$289 for OAA. The programs grew less comparable by the 1960s, as Social Security lowered the eligibility age to 62 and liberalized the earnings test. Also, lacking data to decompose OAA's effect into income and substitution elasticities, it is more difficult to project to the impact of Social Security in later years.

³⁹ In 1940, only commerce and industry workers – 22.9 of 45.2 million total – were covered by Social Security. By 1950, 40.1 of 56.2 million workers were covered, and most others gained coverage by 1960.

⁴⁰ Both programs had implicit tax rates of 100%, but Social Security exempted some earnings. The monthly exemption was \$15 until 1952 – compared to median monthly wage and salary income of \$73 in 1940.

The evidence about OAA is broadly in line with conclusions from Costa (1995). Exploiting policy variation in the incentive to retire, as in this paper, Costa estimated a sizable income elasticity of retirement for elderly Union Army veterans. Her estimate implies that subsequent increases in per capita income and wealth might explain sixty percent of the decline in elderly labor force participation between 1900 and 1980. Costa further noted that most other estimates of retirement elasticities, based on data from the 1970s on, are much smaller, and she suggested that the income elasticity of retirement might have fallen over time.⁴¹ Another possible explanation is simply that the sort of policy variation which she uses for identification yields more conclusive results.

D. Additional Results

This section exploits the individual level data available in the Censuses to show that some groups of the population were more sensitive to OAA than others. It may not be obvious, though, why the impact of OAA should differ across demographic groups. We do expect OAA to have a bigger impact on individuals with a lower wage. Also, because it is fully means tested, those with greater non-labor income or wealth should be less sensitive to OAA. However, with earnings and wealth data lacking for much of the sample, a feasible alternative is to allow OAA to vary with other observable characteristics which are likely to be correlated with earnings and other family resources. The resulting coefficients indicate which groups of the population responded most to rising OAA benefits. Table 8 reports the coefficients from column (4) on the demographic characteristics interacted with OAA benefits. Although many of the estimated coefficients are not individually significant because of relatively small cell sizes, some interesting patterns emerge.

⁴¹ Costa also recognizes that later estimates, generally based on Social Security or disability insurance, might not be entirely comparable. One reason is that they often implicitly combine income and substitution effects, as is the case with the OAA estimates here.

The education terms are of particular interest because of the strong link between education and earnings. The expected relationship is reflected for those with twelve years of school, who were much less sensitive to OAA than those with only 0-8 years of school and, in all likelihood, poorer earnings opportunities. The coefficient on the interaction term of 0.131 (0.077), compared to the coefficient on the OAA main effect of -0.188 (0.085), implies that those with a high school education were about one-third as sensitive to OAA as those who did not attend high school. The other education coefficients are far from significant, however.

The connection to household composition is also interesting. The interaction terms indicate that someone who was not the household head, but related to the head, was insensitive to OAA. Meanwhile, those who were neither household heads nor related to the head were about as sensitive to OAA as those who were themselves household heads. This is likely to reflect the determination of benefit eligibility and levels, which was meant to take into account the support available from kin. It suggests that household status was the principal means for detecting or enforcing kin support. Furthermore, the greater sensitivity of household heads to OAA compounds the impact on participation of changes in household composition, since the participation of household heads fell from 54.0% in 1940 to 51.8% in 1950, while household headship rose from 83.7% to 85.0%. The rise in household headship further implies that the link between household structure and OAA reciprocity may have raised the propensity of the elderly to maintain their own households.⁴²

TABLE 8

Additional Coefficients from Probit (4), Table 6

Demographic characteristics interacted with log annual OAA benefit

	OAA main effect	-0.188 (0.085)	
9-11 years of school	-0.074 (0.074)	Lives in central city of SMA	0.046 (0.053)

⁴² Costa (1997) found that OAA generosity contributed significantly to the major trend towards nonmarried elderly woman living alone instead of living with kin.

12 years of school	0.131 (0.077)	Lives in SMA, not in central city	0.028 (0.049)
13-15 years of school	-0.006 (.105)		
16+ years of school	-0.103 (0.113)	Lives on a farm	0.070 (0.041)
Widowed or divorced	0.016 (0.048)		
Never married	-0.090 (0.085)	Foreign born	0.051 (0.068)
Father or father-in-law of household head	0.301 (0.063)		
Other relative of household head	0.399 (0.094)	Nonwhite	-0.402 (0.062)
Not related to household head	-0.001 (0.085)		

See the notes to Table 6.

The estimates also indicate that farm residents were more than a third less sensitive to OAA than the rest of the population. This is consistent with Fisher (1946), who reported that, while 22% of the aged population were farm residents in 1940, only 16% of OAA recipients were farm residents in the twenty-two states studied in 1944. The lower levels of OAA reciprocity among farm residents might arise because they had higher assets or household income precluding eligibility.⁴³ Another possibility is that individuals left the farm when they retired and began to receive benefits, in which case the increase in benefits might have contributed to the move away from farms.

Lastly, nonwhites exhibit the greatest sensitivity of any group to OAA, along with the largest decline in participation during the decade. Part of the explanation is, no doubt, much lower income and wealth levels among racial minorities. Another factor might be declining labor demand in the South associated with the mechanization of cotton picking in the 1940s, work which had

⁴³ Fisher reported that rural states tended to have higher levels of OAA reciprocity than urban states, so it does

been largely done by blacks. This pattern might raise concerns that changing labor demand was correlated with changing state benefit levels, which would be reflected in the labor supply estimates here.⁴⁴ For that reason, I re-estimated the relationship with whites only, as reported in column (6) of Table 7. The coefficient is almost identical and the conclusions about OAA are unchanged when nonwhites are excluded from the sample.

One last specification explores how OAA affects the employment rate, rather than the labor force participation rate. Focusing on participation supposes that job seekers did not receive OAA, perhaps because the process of applying for OAA was costly or because a job seeker was less likely to be deemed eligible. But if, instead, job seekers tended to receive OAA until they found employment, then the impact of OAA would be felt on employment rates more directly than on participation rates. A specification with the employment rate on the left hand side is reported in column (7) of Table 7. The estimated magnitude of the OAA main effect turns out to be quite similar, as does the aggregate impact of OAA. The aggregate employment rate rose by one percentage point, from 46.0% to 47.0%, between 1940 and 1950. The estimates suggest that if benefits had not risen, then the employment rate would have risen further to 48.2%, an additional 1.2 percentage points. Thus, the conclusions about OAA are as strong, whether considering its impact on the employment rate or the participation rate.

V. SUMMARY AND CONCLUSIONS

This paper explores whether the Old Age Assistance program, the first means tested transfer program for the elderly, induced individuals to retire from work. OAA was strongly means-tested, benefit levels were generous relative to income levels of the day, and OAA reciprocity rates were high. Using individual records from the 1940 and 1950 Censuses, I estimate a substantial effect of OAA on labor force participation. Yet, economists have had trouble attributing the much larger decline in participation that followed to Social Security, even though

not appear that access to the OAA program was more limited in rural areas.

⁴⁴ Quadagno (1988) also noted that OAA benefits in the South appeared to be deliberately set lower for blacks at times.

Social Security came to be received by most of the population. A major problem in quantifying the impact of Social Security or pensions on retirement arises because benefit levels do not vary across the population randomly but depend on past earnings. Similar difficulties have hindered investigation of the current Supplemental Security Income program for the poor elderly. Studying OAA gets around this problem because benefit levels varied across states. The impact of OAA is estimated here from the relationship of changes in participation to changes in benefit generosity within states between 1940 and 1950. The conclusion is that the growth of means tested transfers for the elderly played a significant role in the trend towards earlier retirement.

The estimates suggest that participation would have risen slightly, instead of falling, if not for the 20% increase in real OAA benefits between 1940 and 1950. The incentive to withdraw from the labor force remained even while the prospering economy acted to encourage individuals to stay in the labor force, mitigating the decline in participation. Additional data on slightly younger men offers evidence that benefits were not set endogenously with labor supply trends. The impact of expansions in the generosity of Social Security during the following decade is consequently predicted to be large, explaining at least one-third of the decline in participation during the 1950s.

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APPENDIX TABLE 1: OAA Data by State					
	1940		1950		
	Average Annual Benefit	Reciency Rate	Average Annual Benefit	Real Increase	Reciency Rate
New England					
Maine	258.83	17.3%	496.08	7.4%	16.1%
New Hampshire	257.22	11.9%	510.46	11.2%	12.9%
Vermont	191.84	15.8%	407.71	19.1%	17.3%
Massachusetts	344.42	23.1%	743.62	21.0%	21.5%
Rhode Island	233.90	12.5%	538.48	29.0%	14.7%
Connecticut	322.60	13.3%	663.05	15.2%	11.1%
Middle Atlantic					
New York	306.69	12.9%	627.99	14.7%	9.6%
New Jersey	248.52	11.2%	564.95	27.4%	6.2%
Pennsylvania	264.64	14.5%	460.42	-2.5%	10.4%
East North Central					
Ohio	279.58	22.8%	554.34	11.1%	17.7%
Indiana	216.07	23.0%	421.80	9.4%	14.5%
Illinois	251.47	24.3%	520.62	16.0%	16.7%
Michigan	202.83	22.2%	542.92	50.0%	21.7%
Wisconsin	268.89	21.3%	494.91	3.1%	17.0%
West North Central					
Minnesota	257.71	29.6%	537.46	16.9%	20.7%
Iowa	251.07	24.2%	578.54	29.1%	18.1%
Missouri	193.11	28.3%	505.51	46.7%	32.3%
North Dakota	201.31	22.4%	563.23	56.8%	18.6%
South Dakota	236.71	33.2%	462.57	9.5%	22.0%
Nebraska	198.24	26.3%	520.52	47.1%	18.3%
Kansas	234.28	17.3%	591.97	41.6%	20.1%
South Atlantic					
Delaware	134.03	13.1%	327.24	36.8%	6.4%
Maryland	211.92	15.0%	424.96	12.4%	7.4%
D.C.	307.78	8.1%	485.41	-11.6%	5.0%
Virginia	117.67	11.3%	242.03	15.3%	9.2%
West Virginia	166.37	17.6%	293.01	-1.3%	19.3%

	1940		1950		
	Average Annual Benefit	Reciency Rate	Average Annual Benefit	Real Increase	Reciency Rate
North Carolina	121.70	22.8%	248.02	14.2%	27.3%
South Carolina	98.81	24.3%	262.40	48.8%	36.6%
Georgia	96.02	17.8%	256.65	49.8%	46.1%
Florida	144.11	26.8%	464.15	80.5%	29.2%
East South Central					
Kentucky	104.90	25.7%	231.59	23.7%	28.7%
Tennessee	120.88	23.5%	354.10	64.2%	27.9%
Alabama	112.54	14.6%	240.34	19.7%	40.9%
Mississippi	99.86	18.6%	216.87	21.7%	42.9%
West South Central					
Arkansas	90.51	18.4%	271.89	68.3%	44.8%
Louisiana	142.65	26.8%	565.45	122.1%	68.1%
Oklahoma	212.62	50.2%	599.84	58.1%	52.0%
Texas	123.77	34.1%	399.53	80.9%	43.8%
Mountain					
Montana	216.84	33.6%	609.49	57.5%	23.2%
Idaho	263.29	28.2%	545.39	16.1%	26.3%
Wyoming	285.63	27.1%	652.58	28.0%	23.3%
Colorado	405.03	47.6%	812.06	12.4%	43.7%
New Mexico	173.99	19.3%	415.46	33.8%	30.2%
Arizona	336.28	34.0%	571.84	-4.7%	30.2%
Utah	254.27	45.1%	550.32	21.3%	23.9%
Nevada	316.90	33.4%	619.73	9.6%	24.2%
Pacific					
Washington	265.77	27.2%	767.48	61.8%	34.9%
Oregon	256.61	20.7%	610.04	33.2%	17.9%
California	455.48	25.5%	843.36	3.8%	29.9%
National Average	241	21.8%	515	19.7%	22.7%
Standard Deviation	92	7.9%	166	27.0%	13.4%

Average benefit=transfers divided by recipients. Reciprocity rate=recipients divided by 65-plus population. The standard deviation of benefits and reciprocity rates are weighted by state population. *Source:* Social Security Bulletin, various issues.

APPENDIX TABLE 2: Labor Force Participation Rates			
	1940	1950	Change
New England			
Maine	53.9%	41.6%	-12.3
New Hampshire	44.4%	56.8%	12.4
Vermont	62.9%	44.0%	-18.9
Massachusetts	47.6%	45.6%	-2.0
Rhode Island	55.2%	53.1%	-2.0
Connecticut	54.2%	52.0%	-2.3
Middle Atlantic			
New York	48.8%	52.0%	3.2
New Jersey	47.7%	48.5%	0.8
Pennsylvania	49.1%	46.6%	-2.5
East North Central			
Ohio	44.1%	50.6%	6.5
Indiana	50.9%	58.0%	7.1
Illinois	44.0%	50.4%	6.5
Michigan	52.8%	49.9%	-2.9
Wisconsin	46.7%	49.3%	2.7
West North Central			
Minnesota	46.9%	52.1%	5.2
Iowa	47.3%	50.9%	3.6
Missouri	55.2%	50.8%	-4.5
North Dakota	53.8%	67.0%	13.2
South Dakota	55.7%	54.8%	-0.9
Nebraska	47.9%	52.9%	5.1
Kansas	49.0%	54.6%	5.6
South Atlantic			
Delaware	57.2%	56.9%	-0.3
Maryland	46.7%	51.3%	4.6
D.C.	36.5%	39.5%	3.0
Virginia	60.7%	55.8%	-4.8
West Virginia	49.3%	48.1%	-1.2

	1940	1950	Change
North Carolina	64.4%	54.8%	-9.6
South Carolina	62.0%	53.9%	-8.0
Georgia	57.3%	51.5%	-5.8
Florida	41.7%	33.5%	-8.2
East South Central			
Kentucky	56.5%	50.1%	-6.4
Tennessee	55.8%	49.3%	-6.5
Alabama	56.0%	51.5%	-4.5
Mississippi	63.4%	60.2%	-3.2
West South Central			
Arkansas	61.3%	50.8%	-10.5
Louisiana	50.0%	32.8%	-17.2
Oklahoma	46.2%	41.6%	-4.6
Texas	49.8%	49.3%	-0.4
Mountain			
Montana	50.9%	48.6%	-2.3
Idaho	58.6%	48.0%	-10.6
Wyoming	47.5%	61.3%	13.8
Colorado	37.7%	38.0%	0.4
New Mexico	48.1%	54.7%	6.6
Arizona	47.1%	41.2%	-5.9
Utah	51.8%	54.3%	2.5
Nevada	54.5%	53.9%	-0.5
Pacific			
Washington	45.0%	44.7%	-0.3
Oregon	50.2%	50.6%	0.4
California	40.2%	35.4%	-4.7
National	49.7%	48.7%	-1.0
Male citizens 66-75, not institutionalized or in group quarters, from the Integrated Public Use Microdata Samples for the 1940 and 1950 Censuses. Labor force participation last week is calculated as those at work, with a job but not at work, in the armed forces, or unemployed, divided by the population. Data are weighted by the person weights to make them nationally representative.			

APPENDIX TABLE 3: Additional Coefficients from Probit (4), Table 6

	Dependent variable: In the labor force	
	x1940	x1950
9-11 years of school	0.603 (0.405)	0.537 (0.423)
12 years of school	-0.371 (0.423)	-0.535 (0.440)
13-15 years of school	0.322 (0.571)	0.322 (0.601)
16+ years of school	1.18 (0.62)	1.00 (0.65)
Don't know years of school	-	-0.113 (0.020)
Was married	-0.320 (0.260)	-0.311 (0.271)
Never married	0.217 (0.466)	0.303 (0.483)
Not household head, father or father-in-law of head	-2.39 (0.34)	-2.33 (0.36)
Not household head, other relative of head	-2.64 (0.51)	-2.68 (0.53)
Not household head, not related to head	-0.255 (0.466)	-0.069 (0.480)
Lives on a farm	0.421 (0.220)	0.350 (0.228)
Lives in central city of SMA	-0.095 (0.290)	-0.053 (0.300)
Lives in SMA, not in central city	-0.063 (0.266)	-0.104 (0.275)
Foreign born	-0.338 (0.381)	-0.366 (0.394)
Nonwhite	2.06 (0.31)	2.11 (0.33)
Fixed effect	-	-0.134 (0.082)

APPENDIX TABLE 3, <i>Continued</i>			
Age 67	-0.098 (0.024)	Age 72	-0.614 (0.026)
Age 68	-0.197 (0.024)	Age 73	-0.708 (0.028)
Age 69	-0.298 (0.025)	Age 74	-0.829 (0.029)
Age 70	-0.435 (0.025)	Age 75	-0.804 (0.030)
Age 71	-0.533 (0.027)	Constant	-0.750 (0.737)
Additional coefficients from the probit estimated in column (4), Table 6. See notes to Table 6. State effects were included as well. Robust standard errors are in parentheses.			

APPENDIX TABLE 4: <i>Sample Means of State Level Variables (Standard Deviation)</i>		
	1940	1950
Manufacturing value added per capita	186 (101)	333 (164)
Average farm value	6940 (7129)	9614 (8373)
Per capita income	595 (202)	835 (185)
Unemployment rate	9.6 (2.7)	4.8 (1.5)
Source: <i>Statistical Abstract</i> , various years. Variables are expressed in 1940 dollars, deflated by the CPI (1950=178.8). The sample standard deviations are weighted by state population.		