It is predicted by theory that pension makes people work less due to income effects. The data show that the labor force participation rate of men 65 and over was 54.0% in 1930, but it declined to 19.3% in 1980. Much of the literature tried to explain that Social Security was a main factor which decreased it, but failed to prove significant relationship between Social Security and retirement. Friedberg focuses on Old Age Assistance (OAA).

OAA was one of the main sources of old people’s earning until 1974, when Supplemental Security Income (SSI) program replaced it. In 1940, 21.8% of the aged population was receiving OAA. This is very high compared to the standards of today’s welfare programs. Moreover, it was very generous. The average nationwide benefit was $241, which is about 40% of 1940 per capita income. In 1950, the recipiency rate rose to 22.7% and the average benefit increased to $289 in real terms. The labor force participation rate decreased from 49.7% in 1940 to 48.7% in 1950. These suggest that the increase in OAA could have stimulated retirement.

Parsons (1991) analyzed the impact of OAA and concluded that 50% of the increase in retirement rates between 1930 and 1950 could be explained by OAA. But he used state level data because individual data were not available for 1930. Friedberg uses individual level data by restricting concern to period from 1940 to 1950. An advantage of this approach is that it is easier to see how individual’s decision was influenced by OAA. Of course, individual’s other characteristics can be controlled by using them as explanatory variables.
Before proceeding to econometric model, it is worth to mention that her data do not include individual level OAA benefits, income and wealth. Probably they are not included in the Census, so it would be difficult to link individual characteristics to them. But it is not impossible to do this. Once we get those data, we can try to find common variables between them and the Census. Unless those data include identification numbers such as Social Security Number or Driver’s License Number, linking project cannot be done completely. But using this method, we would be able to get data of typical OAA benefits given to individuals with some characteristics. These data enable us to get more consistent estimates for the parameters than the state level data used in this paper.\footnote{This kind of method is described in much detail in Ridder and Moffitt, “The Econometrics of Data Combination,” Handbook of Econometrics, volume 6, chapter 75, 2007.}

The econometric model Friedberg uses is

$$\text{LFP}_{ist} = \phi \left( \beta \log(\text{OAA}_{st}) + X_{ist} \gamma + X_{ist} \log(\text{OAA}_{st}) \delta + Y_{st} \phi + \sigma_{state} + \tau_{year} + \varepsilon_{ist} \right)$$

where \( \text{LFP}_{ist} \) is \( i \)'s labor force participation decision. We are mainly interested in \( \beta \) and \( \delta \). The state level OAA data are used since they were not available at the individual level. \( Y_{st} \) is economic conditions of the state including per capita income. This model is estimated as a probit.

\( \text{OAA}_{st} \) is a good econometric variable because it has much variation across states. Average benefits fluctuated from state to state around $241 with standard deviation $92 in 1940, and around $289 with standard deviation $93 in 1950. Recipiency rates also moved around 21.8% with standard deviation 7.9% in 1940, and around 22.7% with standard deviation 13.4% in 1950. This is because benefit levels and recipiency criteria of OAA were decided by the state government. In contrast, SSI and Social Security are federally administered, and thus have little variation across states. This would have made identification difficult, noting that only two years 1940 and 1950 are in the sample.
But she considers nominal benefits only. It is real benefits that matter when people decide whether to retire. In the city where per capita income is high, price level is also high, and thus it costs much for people to live there. They are less likely to retire when nominal benefit is a little higher than average, but real benefit is lower. The data show that average benefits were high in the states whose per capita income was likely to be high. For example, in 1940, California’s average benefit was 455 and New York’s was 307, while it was 96 in Georgia. So real benefits in terms of per capita income may not vary much across states. This may cause an identification problem.

She uses CPI to deflate benefit levels. This is necessary when data in two different years are used. She could have used other indices to deflate. OAA benefits would have been used as consumption in most cases, so it is reasonable to deflate using CPI. But for consistency, although not significant, it would be better to use CPI when deflating per capita income and wealth as well. I am not sure which data for income and wealth she uses. If her income and wealth data are deflated using GDP deflator or other index, it would be more consistent to use the same index to deflate OAA benefits.

Several results are provided in the paper. In the first model, she does not use state and year dummies, interaction terms, and state characteristics. The coefficient of OAA_{st} is negative and significant. In the second, she adds state and year dummies. It is still negative and significant, but has a bigger standard error. The third uses interaction terms as well, and shows that it is significant at 5% level, but not at 1% level. All of the above results are not robust in the sense that unobservable errors may be correlated with retirement decision through state characteristics.

The last model includes state characteristics. The coefficient of OAA_{st} is still negative and significant. But it is not significant at 1% level. All the coefficients of state characteristics are reasonable. The labor force participation rate is greater as state economy size is bigger,
state per capita income is higher, and state unemployment rate is lower. All the coefficients are significant except for that of state unemployment rate. She does not report $F$-statistic, so it is not clear whether the whole model makes sense.

Counterfactual prediction gives an interesting result. She predicts the labor force participation rate in 1950 using the estimated coefficients, OAA data of 1940, and the other data of 1950. In any of the above four models, the predicted labor force participation rate is higher than 49.7% which is the actual rate in 1940. This implies that the aged people would have worked more in 1950 if OAA benefits stayed at the same real level. It is probably because the economy was in better condition in 1950 than in 1940, when the economy had recovered from the Great Depression and the World War II was underway. Interestingly, the increase in wealth and wage during 1940s generated bigger substitution effects than income effects, for income effects would have made people retire earlier.

The effect of OAA was very big in this sense, especially compared to the result of Parsons who claimed that OAA explained 50% of the increase in retirement rates. For instance, when all the explanatory variables are used, the labor force participation rate is predicted as 50.1% with counterfactual data, which is 1.4% higher than the actual rate in 1950. Considering that the actual rate decreased by 1%, OAA was responsible for more than 100% of the decrease in the rate.

But the comparison of Friedberg with Parsons in this way does not make much sense. Actually the labor force participation rate fell from 54.0% in 1930 to 48.7% in 1950.\footnote{In Parsons (1991), the rate is 41.8% in 1940 and 41.4% in 1950. So actually he concludes that the establishment of the OAA program induced a labor force withdrawal of 6.1%. There seems to exist big discrepancy between Parsons’ and Friedberg’s data.} So Parsons showed that 2.6% more of the aged people retired, who would have stayed in the labor force if there were not the increase in OAA benefits. In Friedberg’s last model, this rate is 1.4%. In the other models, the effect varies from 1.2% to 2.4%. Even if we consider...
that there was no OAA program in 1930, we cannot tell who showed the stronger effect of OAA, since Parsons used a linear model, but Friedberg does not.

We can find two other ways to compare two papers. One is to apply Friedberg’s method to Parsons’ data. In this case, a slight modification of the model is necessary since Parsons’ data do not include any individual characteristics. Then $\beta$ can be directly compared. Another way is to duplicate Parsons’ estimation using the data of years 1940 and 1950 only. Using the estimated coefficients, do the same prediction with counterfactual data, then we can compare predictions in the two methods on how many percentage points of the aged people withdrew from the labor force due to the increase in OAA benefits.

Back to Friedberg’s model, she claims that there was no endogeneity in the sense that increased benefits did not result from increased retirement. To show this, similar estimation is performed with the sample of male aged 55–59, slightly younger than 65 and over in the original sample. In this case, the coefficient of $OAA_{st}$ is highly insignificant. It is not even negative. People aged 55–59 had similar labor market condition with people aged 65 and over, but the only difference between two groups is that the former could not apply for OAA. This result suggests that the latter wanted to retire to get OAA benefits. The result is robust with the sample of male aged 60–64 or 50–54.

One more possible experiment is to use both groups together to estimate the same model. If there was an endogeneity problem, the coefficient of $OAA_{st}$ would become closer to 0, since then factors shared by both groups would explain the change in retirement very well, reducing the coefficient of $OAA_{st}$. Actually the result is that the coefficient gets farther from 0, although less significant. Insignificance is not a big problem since OAA interaction terms are still jointly significant at less than 1% level. One caveat is that she used the sample of male aged 66–73 instead of 66–75 because of computing capacity, which may have caused inconsistency. A make-up experiment using the whole sample would reinforce her claim.
She concludes the paper with inference of the Social Security effect on retirement and comments on some other results. An observation that Social Security increased 50% from 1950 to 1960 motivates the following inference. Since Social Security is very similar to OAA, we can use the same model to predict its effect on retirement. Simulation shows that the increase in Social Security would have reduced the labor participation rate from 48.7% in 1950 to lower than 44.4% in 1960. The actual rate was 35.3%, so there might be wealth effects proliferating during this period, which made people retire early for leisure.

The coefficients of interaction terms show that people with education of 12 years were less sensitive to OAA benefits. Interestingly, people with education of 13 years or more were more sensitive than people with education less than 8 years, although insignificant. She does not give any explanation for this result. Farm residents were also less sensitive to OAA benefits than people who lived in metro area. Household heads were more sensitive than relatives, and nonwhites than whites very significantly.