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Reconsidering the Social Security Notch and retirement: Wealth and incentive effects

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HIGHLIGHTS

- First to use modern research design to study Social Security "Notch" on retirement.
- Explains why Krueger and Pishcke (1992) found limited impact of "Notch" on retirement.
- Shows that the "Notch" produced large offsetting wealth and incentive effects.

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ABSTRACT

Using the Health and Retirement Study, we show that studies using the Social Security Notch cannot separately identify the effects of retirement wealth and forward-looking incentives on retirement because the Notch natural experiment changed both factors in offsetting ways.

1. Introduction

Social Security, long the centerpiece of retirement support in the United States, has been the subject of many empirical studies. Our understanding of Social Security's impact on retirement has been limited by a lack of exogenous program variation. Further, it has often not been clear how best to parameterize policy changes, with early work focusing on the level of SSW[1] or the one-year change of this measure from delaying retirement. More recent empirical methods model this incentive to retire using the difference between SSW assuming immediate retirement and SSW from retiring at the future, wealth- (or utility-)maximizing age, referred to in some earlier work (and here) as PV.

One exception to the lack of exogenous variation in Social Security involves legislative changes in the 1970s when Congress attempted to make cost of living adjustments automatic. Congress mistakenly increased benefits for those born between 1912 and 1916 through "double indexation" and then overcorrected, causing a roughly 10% reduction in benefits for those born 1917–1921, known as the "Notch generation".[2] Krueger and Pischke (1992) used these policy changes and found no change in retirement timing among the Notch generation. Even today, this lack of response continues to be cited as showing that retirement does not respond to wealth changes. For example, Brown et al. (2010) note that "Krueger and Pischke (1992) find little evidence of an increase in labor supply for workers in the Social Security Notch cohort, who experienced a dramatic reduction in Social Security wealth".

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1 Abbreviations: Health and Retirement Study (HRS), Peak Value (PV), Social Security Wealth (SSW), Social Security Administration (SSA).

2 See Krueger and Pischke (1992), General Accounting Office (1988, 1992), and the SSA's website www.ssa.gov/history/notchfile1.html, notchfile2.html, and notchfile3.html.

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Table 1
Summary statistics.
Source: Restricted HRS (AHEAD)—men not retired by age 60 to retirement or 70.

	Initial year	Final year (censored or retired)
Retired	0.06 (0.23)	0.78 (0.42)
Peak value	\$2629 (2703)	\$296 (954)
Social security wealth	\$42,327 (13,118)	\$58,482 (19,873)
Age	60 (0)	65 (3)
Average annual lifetime earnings	\$14,953 (6661)	
Less than high school	0.39 (0.49)	
High school	0.29 (0.45)	
N	996	

Notes: Summary statistics from the initial year (age 60) and final year observed.

In this note, we show that while the Notch experiment did alter wealth levels for the affected cohort, it simultaneously produced a large, and offsetting, effect on the incentive to delay retirement.[3] For this reason, it is incorrect to interpret the effects (or lack thereof) of the Notch on retirement as evidence of insensitivity of retirement to wealth levels. Because this natural experiment continues to be cited as evidence of an insensitivity of retirement to wealth, it is important to understand the full effects of the Notch on retirement.[4]

2. Material and methods

We use the RAND compiled HRS merged to SSA earnings histories. After cleaning and focusing on the cohorts affected by the Notch and those just before, our sample consists of 996 males born between 1912 and 1922 who had not retired before age 60.

We start by illustrating the individual effects of PV and SSW on retirement using a common approach based on individual-level data, and controlling for key observables. Specifically, we follow Coile and Gruber (2007),[5] and estimate a discrete time logit hazard model for retirement:

$$H(R_{iat}) = f(\alpha_0 + \gamma_1 PeakValue_{iat} + \gamma_2 SSWealth_{iat} + \delta LifetimeEarnings_i + \beta X_i + AgeFE_a + YearFE_t + \varepsilon_{iat}). \quad (1)$$

Eq. (1) models the probability of retirement for individual i, in year t, at age a as a function of the key Social Security variables, a fourth degree polynomial in lifetime earnings,[6] age and calendar year fixed effects, and other controls in X_i—education (less than high school and high school) and race (white). The dependent variable is a dummy variable for retirement. Observations after the date of retirement are dropped, as retired individuals are no longer at risk for retirement.

The two key variables, PV, and SSW are based on calculations of the present value of SSW using the SSA's ANYPIA batch calculator. We assume that those retiring at age 60 or 61 will claim benefits at 62. Benefits are calculated using Eq. (2), which is similar to Coile and Gruber (2000, Appendix) and are discounted using a 6% discount rate[7] (d) and survival probabilities[8] (P). Specifically, the present value of SSW for individual i, retiring at age a, calculated for each possible retirement age (r), up to the maximum age (R) is:

$$SSWealth_{it}(A) = \sum_{s=r}^{R} (1+d)^{-(s-r)} \times \left(P_{s|r} \times Benefits_{s,A} \times I(Age62_s)\right). \quad (2)$$

PV is calculated as the individual's current SSW subtracted from his maximum attainable SSW. The PV will be positive if there is an incentive to delay retirement and zero if they have reached their maximum.

3. Results

Summary statistics for age 60 and the final age (either retirement or 70) are shown in Table 1. Note that only 6% have retired at age 60 but 78% have retired by the end of our sample. PV falls drastically from \$2629 in the initial year to only \$296 in the final year, while SSW increases from \$42,327 to \$58,482.

The estimates for the hazard model are found in Table 2, Column 1 and show a 1.1 percentage point (or approximately ten percent) reduction in the probability of retiring at a given age for every \$1000 increase in PV. The SSW coefficient indicates that a \$1000

[3] The Notch legislation both lowered benefit levels and changed the benefit formula to not include earnings after age 61. By eliminating earnings after age 61 from the benefits calculation for later retirement ages, and given the inflationary environment of the 1970s, this reduced the gain to delaying retirement and so lowered the PV measure. Krueger and Pishcke's (1992) Fig. 1 illustrates a smaller increase in benefits from postponing retirement for the "Notch generation".

[4] Other examples citing this lack of response include Goda et al. (2011) and Blau and Goodstein (2008).

[5] We differ from Coile and Gruber (2007) in that we are focused on the Notch cohort, which no one prior has used this methodology to investigate.

[6] Coile and Gruber use AIME, but to avoid controlling for the 1977 Amendments that altered the AIME calculation we instead use discounted earnings between ages 45 and 55. In practice this makes little difference.

[7] Coile and Gruber (2007) also use 6%. We have varied the discount rate and found similar results. SSW coefficients are not very sensitive to the discount rate choice, but, as expected PV is somewhat more sensitive. Lower discount rates produce somewhat larger effects of the Notch on retirement working through PV, but these are still somewhat offset by effects of the Notch working through SSW. For discount rates between 0.03 and 0.09, the total effect of the Notch is never statistically different from zero at a five percent or lower level.

[8] SSA's Life Tables for the United States—1980, males, pp. 51–52.