INTERIM REPORT ON THE IMPACT OF INCREASING EARNINGS INEQUALITY ON RETIREMENT DECISIONS AND THE DISTRIBUTION OF SOCIAL SECURITY BENEFITS

Peter Gottschalk*
Minh Huynh

CRR WP 1999-05
November 1999

Center for Retirement Research at Boston College
550 Fulton Hall
140 Commonwealth Ave.
Chestnut Hill, MA 02467
Tel: 617-552-1762 Fax: 617-552-1750
http://www.bc.edu/crr

*Peter Gottschalk is a Professor of Economics at Boston College. The opinions and conclusions are solely those of the author and should not be construed as representing the opinions or policies of SSA or any agency of the Federal Government or of the Center for Retirement Research at Boston College.

About the Center for Retirement Research

The *Center for Retirement Research at Boston College*, part of a consortium that includes a parallel center at the University of Michigan, was established in 1998 through a 5-year grant from the Social Security Administration. The goals of the Center are to promote research on retirement issues, to transmit new findings to the policy community and the public, to help train new scholars, and to broaden access to valuable data sources. Through these initiatives, the Center hopes to forge a strong link between the academic and policy communities around an issue of critical importance to the nation's future.

Center for Retirement Research at Boston College
550 Fulton Hall
140 Commonwealth Ave.
Chestnut Hill, MA 02467
phone: 617-552-1762 fax: 617-552-1750
e-mail: crr@bc.edu
http://www.bc.edu/crr

Affiliated Institutions:

Massachusetts Institute of Technology
Syracuse University
The Brookings Institution
Urban Institute

Introduction

The focus of the overall project is on the *distributional* implications of changes in labor market outcomes on retirement labor force participation and income. Rising average real wages may well have led to earlier retirement and higher benefits for the average members of recent cohorts. But focusing on the average is likely to be highly misleading. During a time of rising inequality persons at the bottom of the wage distribution are unlikely to have retirement experiences that resemble the average experience.

This project uses administrative data to track long term changes in earnings inequality of persons who have recently retired. The objective of this analysis is to follow persons who were in the bottom of the distribution of permanent earnings during their working lives. Our measure of earnings, therefore, covers a longer period than the usual annual accounting period used in most studies

We use administrative data to overcome weaknesses in the commonly used data sets.

The major problem with any nationally representative longitudinal data set is that workers are observed only over a relatively short period. Even the PSID, the longest available national longitudinal data set, has only 23 years of complete data on earnings and retirement outcomes[1]

---

[1] The income data for 1968 and 1969 are in bracketed form. 1993 is the latest year of final release data.

[2] Data are for accumulated earnings measured in 1998 dollars. The sample includes males in the 1996 SIPP born between 1959 and 1939 who could be matched to the MEF. Since changes in the the FICA earnings cap can affect measures of inequality we impose a constant real dollar cap in all years. This cap is determined by the lowest binding cap in the years covered.

While such data sets provide rich demographic information there are at least two interrelated problems with these limited longitudinal data sets. First, since these data sets cover at best a small part of the working lives of respondents, the resulting histories may misclassify persons as low earners even if they had high earnings prior to the period covered in the PSID. Second, comparing individuals in different cohorts over the same period of their working greatly reduces sample size or limits the length of the common period. The starting age for the common period of observation must be set high enough so that the oldest cohort is observable at that age while the maximum age must be set low enough so the most recent cohort is observed at that age

The alternative to using the nationally representative data sets, such as the PSID, is to use administrative data. These data offer less demographic detail but cover a much longer period . They are also likely to provide less measurement error in earnings and benefits.

We use the Master Earnings File (MEF) to place individuals in cohort specific deciles of the distributions of earnings based on their FICA earnings over a large number of years. This measure comes closer to lifetime earnings than anything available in either the PSID or SIPP.

In this report we present the results of using these files to construct measures of long run earnings for persons classified by cohort. The earnings are measured over identical age ranges for all cohorts. We examine whether long run earnings were less equally distributed for more recent cohorts, as would be suggested by the cross-sectional evidence of the rise in inequality of yearly earnings.

The second stage of this project will be to exploit the longitudinal nature of these data and the SIPP to study the earnings and retirement dynamics of persons at the bottom of the distribution of permanent earnings.

Methodology

We use the 1984, 1990, 1993 and 1996 SIPP panels matched to the Master Earnings File to obtain the FICA earnings starting in 1951. This is the first year in which FICA earnings are available in electronic form. We focus on males since it is difficult to distinguish between low annual earnings that result from low wages versus labor supply decisions for females, especially among females in early cohorts.

Our measure of accumulated earnings is given by the undiscounted sum of FICA earnings deflated by the CPI:

$$\text{AE} \equiv \sum_{t=LB}^{UB} \frac{Earnings_t}{CPI_t}$$

The lower bound and upper bounds for this sum will depend on the particular question being addressed.

We group all sample members into five 5 year cohorts starting with those born between 1915 and 1919 and ending with persons born between 1935 and 1939. Members of the earliest cohort were already nearing retirement age by the time inequality started rising. At the other extreme, the earliest cohort was in their prime earnings years in the early 1980's.

The following table gives the ages of each cohort in the initial year of FICA earnings (1951), at the start of the rise in inequality (1975) and selected years covered by the SIPP.

Table 1
Definition of Cohorts

			Age in				
Cohort	Year of birth		1951	1975	1984	1996	1999
1	Start	1915	36	60	69	81	84
	End	1919	32	56	65	77	80
2	Start	1920	31	55	64	76	79
	End	1924	27	51	60	72	75
3	Start	1925	26	50	59	71	74
	End	1929	22	46	55	67	70
4	Start	1930	21	45	54	66	69
	End	1934	17	41	50	62	65
5	Start	1935	16	40	49	61	64
	End	1939	12	36	45	57	60

These cohorts can be characterized in the following terms:

- Cohort 1—Benchmark group whose members were in retirement years before earnings inequality started rising. The SIPP, however, can not be used to track their dynamics between age 62 and 65 since they turned 65- 69 at start of 84 panel
- Cohort 2—Members of this group were late in their working lives when inequality started increasing (51-55 in 1975). They can, however, be followed through retirement years using the SIPP
- Cohorts 3 and 4-- Key cohorts observed in prime work life (46-50) when inequality started increasing. They are also observed in full-retirement years through their 60's in SIPP (cohort 3 is 70-74 and cohort 4 is 65-69 in 1999)
- Cohort 5—Cohort who may have been hit hardest by rising inequalities since they were young when inequality started increasing (36-40 in 1975) but their retirement histories aren't observed since they turn 60 to 64 in 1999.

Results

Our initial objective is to determine whether recent cohorts have experienced an increase in the dispersion of "life-time" earnings inequality. Two factors limit our ability to fully answer this question. First, the MEF does not cover the full-careers of these workers since the available data does not start until 1951. At this date persons in the oldest cohort were already between 32 and 36, so their early labor market experiences are not observable. Second, by 1999 the most recent cohort is too young to observe member's earnings past 60. Thus, while we will use the full histories when making comparisons within a cohort, for all cross-cohort analysis we will limit our analysis to the accumulated earnings between 36 and 60.

Table 1 presents summary measures of the distribution of accumulated earnings for each of our five cohorts[2]. The second row in the table shows the years during which the earnings of

members of each cohort were being accumulated (i.e. the years in which members of the cohort were between 36 and 60). For example, the oldest member of the earliest cohort was 60 in 1979. Members of the most recent cohort were in this age range between 1971 and 1998.

Figure 1 plots the mean and median accumulated FICA earnings between 36 and 60 for our five cohorts. The substantial impact of economic growth is clearly visible in these summary measures. The mean accumulated earnings increases from $416,000 for the earliest cohort to $619,000 for the most recent cohort. The median also increases but not as fast, which already suggests that inequality of accumulated earnings was also higher for more recent cohorts.

Figure 2 provides direct evidence that inequality of accumulated earnings was higher for more recent cohorts[3]. The top line shows ratio of the 90th percentile to the 10th percentile of accumulated earnings. Since these may be affected by extreme changes at in the tails of the distribution we also show the ratio of the 75th to the 25th percentiles. These series show that for the cohort born between 1915 and 1919 the person at the 90th percentile had accumulated earnings that were 5.9 times the accumulated earnings of the person at the 10th percentile. For the most recent cohort (born between 1935 and1939, who worked during the period of rising inequality) the ratio is 7.5 which confirms that accumulated earnings grew increasingly unequal. When we focus on the ratio of accumulated earnings at the 75th percentile relative to the 25th percentile we find a similar increase in inequality (an increase from 1.7 to 2.4) which indicates that the rise in inequality was not confined to the extremes of the distribution.

Since more recent cohorts had higher means but greater dispersion, it is possible that those at the bottom of the distribution may have had low earnings relative to persons at the top of their cohort specific distribution, but that they had higher absolute earnings than persons at the same percentile points in earlier cohorts. This would occur if the greater mean offset the higher

---

[3] Note that if all the increase in inequality reflected an increase in the variance of the purely transitory component of earnings then the cross-sectional inequality would increase there would be no increase in inequality of accumulated earnings since year to year changes in earnings would cancel out for each individual.

[4] Note these are the same changes shown in Table 1.

dispersion. To explore this possibility we plot the cohort specific percentile relative to the percentile of persons born between 1915 and 1919. For example the 10th percentile of accumulated earnings for persons in the cohort born between 1935 and 1939, is 28 percent higher than the 10th percentile of accumulated earnings for the 1915-1919 cohort. These ratios are shown in Figure 3. Since , by definition this ratio is equal to one for the earliest cohort the values can be read as the percentile for each cohort relative to the same percentile for the base cohort. The patterns are clear. The earnings at the 75th and 90th percentile rose sharply for each successive cohort. The 50th percentile was substantially higher for the cohort born between 1920 and 1925 than for the earlier cohort, but the changes in the median are small for further cohorts.[4] Likewise the 10th and 25th percentiles rose sharply between our first and second cohorts but stagnated for further cohorts. This indicates that the rise in the average earnings just offset the increase in inequality. As a result the person at the 10th percentile of persons born between 1935 and 1939 had accumulated earnings no higher than persons born 15 years earlier.

Since the occupations covered by FICA have changed over time some persons with low accumulated FICA earnings may have low reported earnings because they have unreported earnings from uncovered sectors. Specifically, members of the early cohorts with low accumulated FICA earnings may been working in uncovered sectors. While it is impossible to fully correct for this change in coverage, one way of partially dealing with this issue is to limit the sample to persons who report FICA earnings in each quarter. While this does not deal with the fact that occupational coverage changes over time, it does eliminate artificially low earnings of persons who have no FICA earnings in some quarters. The results, presented in Table 2, show patterns that are remarkably similar to those in Table 1, which include quarters of zero earnings. From this we conclude that our results are not being driven by persons who did not work in covered sectors in some quarters.

Thus far we have shown summary measures of the distributions of accumulated earnings for each cohort.

Figure 1
Mean and Median Accumulated Earnings by Birth Cohort

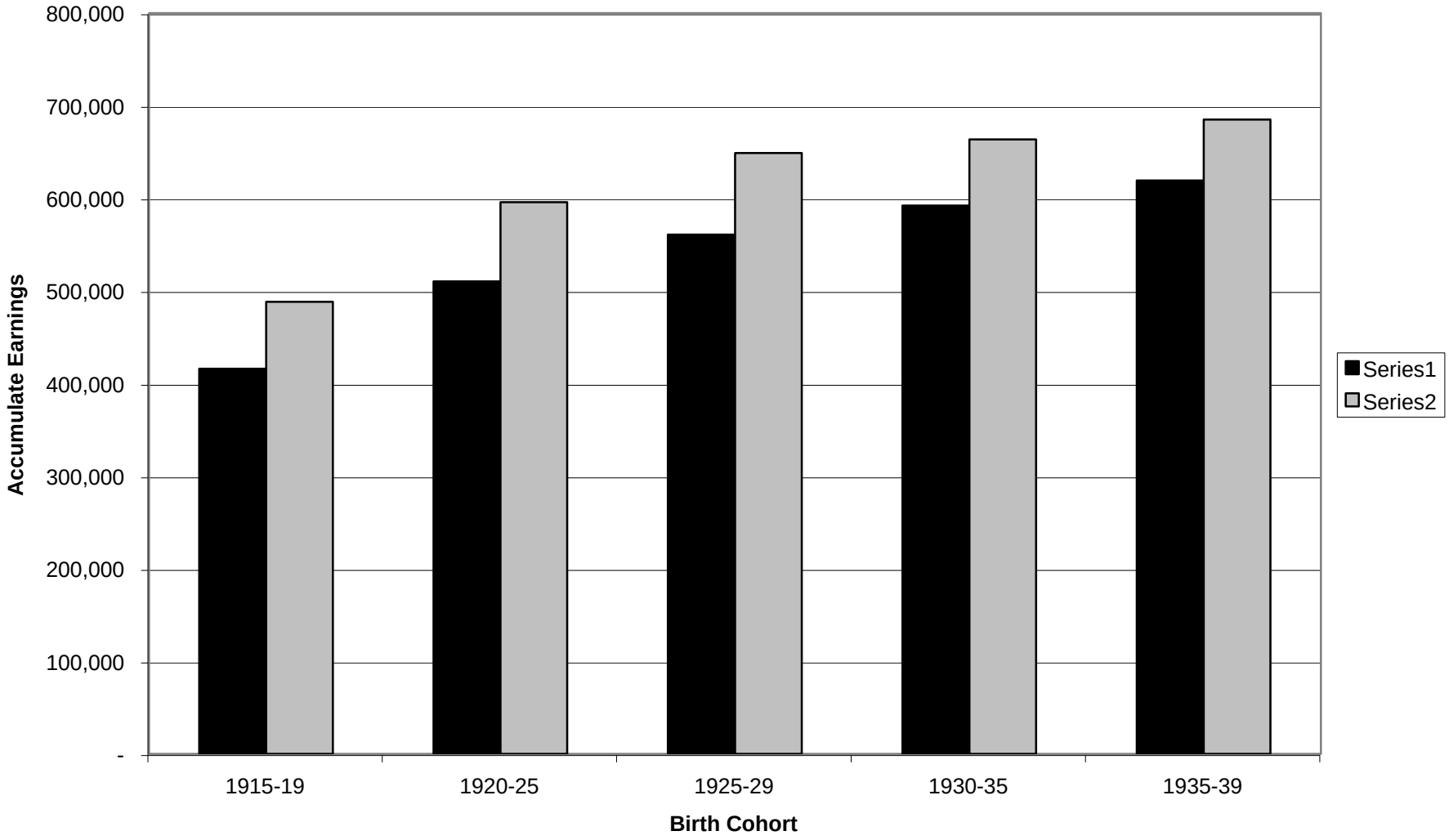

Figure 2
P90/P10 and P75/P25 of of Accumulated Earnings
by Birth Cohort

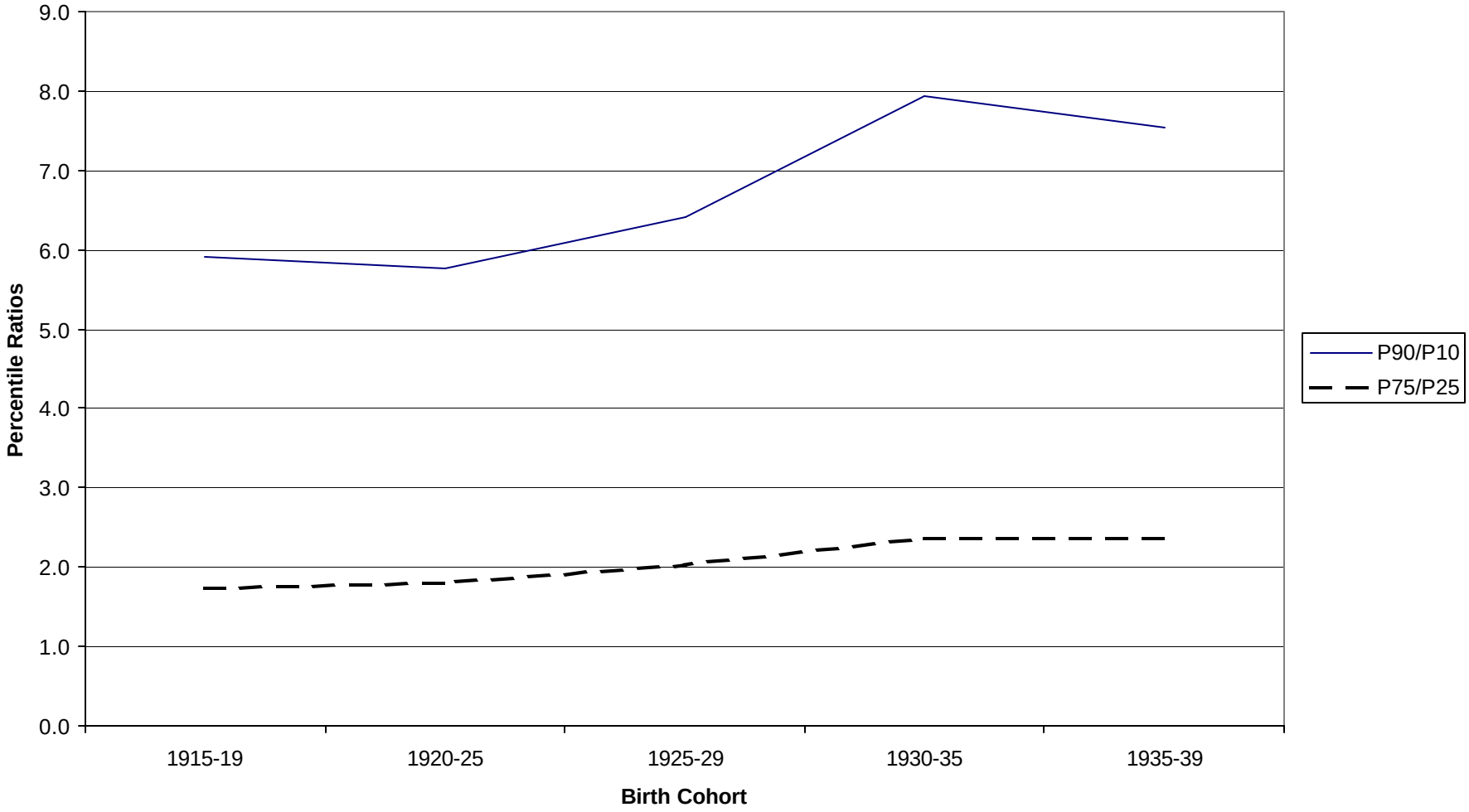

Figure 3
Percentiles of Accumulated Earnings by Birth Cohort

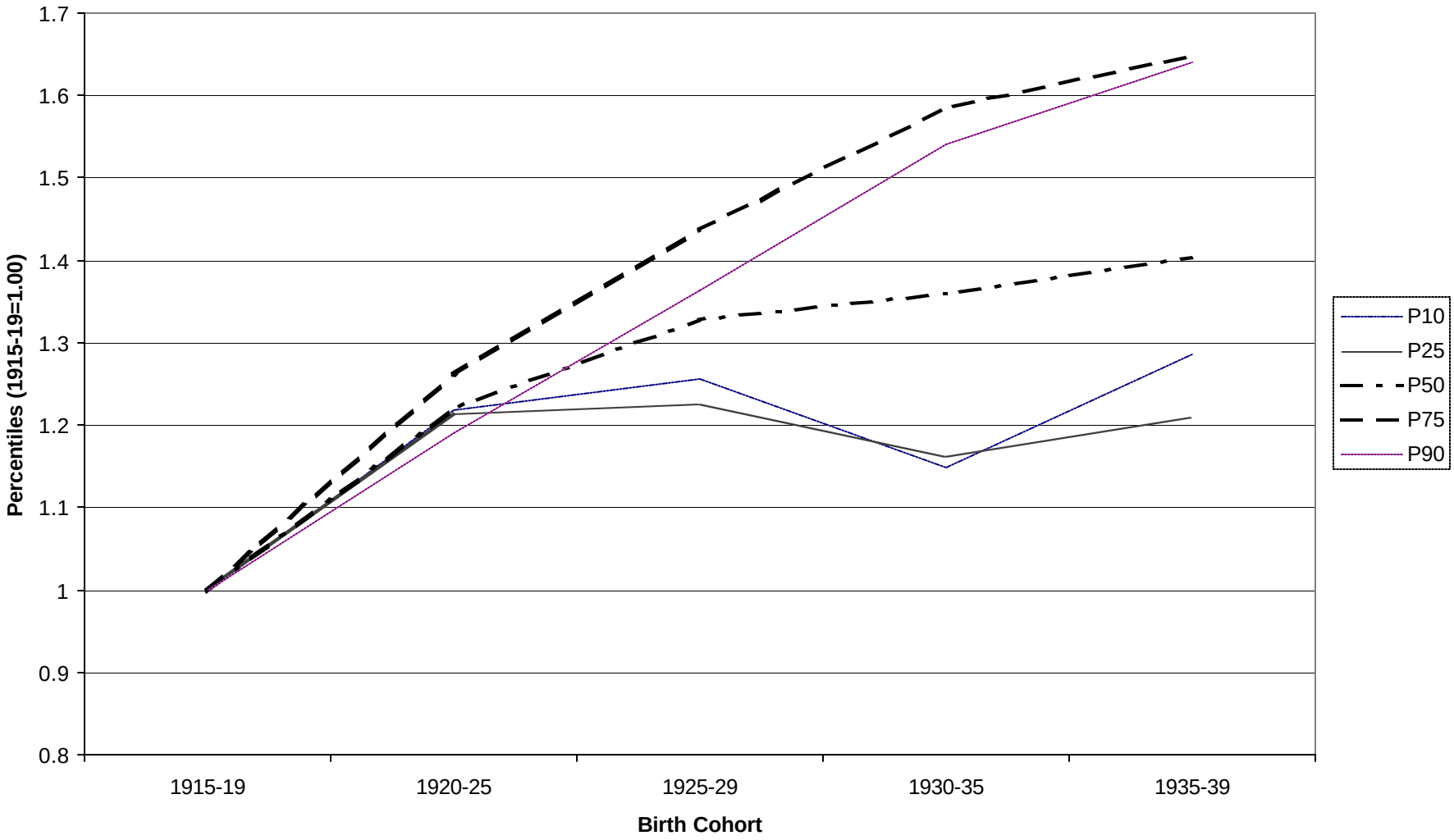

Table 2
Distribution of Accumulated Earnings
All Persons

Birth Cohort		1915-19	1920-25	1925-29	1930-35	1935-39
Earnings Years		1951-79	1956-1984	1961-89	1966-1994	1971-1998
Mean		415,957	510,189	560,803	592,184	619,187
Percentiles						
	10	101,356	123,371	127,231	116,327	130,231
	25	312,261	379,053	383,008	362,827	378,100
	50	488,331	595,937	648,802	663,576	684,985
	75	541,444	683,712	777,870	858,109	892,000
	90	598,117	711,929	815,956	922,035	980707
P10/P50		0.208	0.207	0.196	0.175	0.190
P90/50		1.225	1.195	1.258	1.389	1.432
P90/P10		5.901	5.771	6.413	7.926	7.531
P75/P25		1.734	1.804	2.031	2.365	2.359
obs		2,814	3,780	4,294	4,123	4,637
P10		1	1.217204704	1.255288291	1.147707092	1.284886933
P25		1	1.213897989	1.226563676	1.161935048	1.210846055
P50		1	1.220354637	1.328611126	1.358865196	1.402706361
P75		1	1.262756629	1.436658269	1.584852727	1.647446458
P90		1	1.190283841	1.364208006	1.541562938	1.639657458