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U.S. INCOME MOBILITY IN THE SEVENTIES AND EIGHTIES

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This paper focuses on three questions: (1) Was mobility within the income distribution in the 1980s different from the 1970s? (2) Is there as much mobility when some measure of permanent income is used? and (3) Does movement within the income distribution imply real income changes? Income mobility between 1969 and 1976, and between 1979 and 1986 is examined using real family income from the Panel Study of Income Dynamics. The results show that there is considerable movement within the income distribution when both annual and permanent income is used. This movement, however, is generally not very great in either direction.

1. INTRODUCTION

Although social scientists have long been interested in poverty and income inequality, general interest appears to wax and wane. Thirty years ago, Michael Harrington, in his 1962 book *The Other America*, drew attention to the plight of the poor and pointed to the falling share of aggregate income of the poorest quintile of families during the 1950s. Since the war on poverty began, the income share of the poorest quintile at first rose, and then in 1975 began falling so that in 1990 the lowest quintile's income share was less than it was in 1967.[1]

Interest in income inequality has recently grown, but no clear consensus has developed. Although most agree that income inequality has increased over the 1970s and the 1980s, liberals claim that those at the bottom of the income distribution are worse off while conservatives claim that all are better off now than they were at the beginning of the "Reagan Revolution."[2]

The income share numbers reported in the Current Population Reports have been criticized on a variety of grounds. The Council of Economic Advisors (1992) point out differences between using annual income and lifetime income. They report that Gini coefficient estimates are around 6 percent lower when income is averaged over a 4-year period. Cutler and Katz (1992) show that when consumption data are used rather than income data, the distribution is, indeed, more equal. However, they note that the consumption distribution, similar to the income distribution has been following the same trend toward greater inequality. The Congressional Budget Office (1992) adjusted family income shares to reflect falling

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[1]The U.S. Bureau of the Census (1991) reports that the share of aggregate income received by the poorest quintile of families was 5.4 percent in 1967, 5.6 percent in 1974, and 4.6 percent in 1990.

[2]For examples of this debate see Clayton Yeutter, When 'Fairness' Isn't Fair, *The New York Times*, March 24, 1992 or the May 21, 1992 *Wall Street Journal* opinion page for the debate between the editors and Paul Krugman.

family sizes. Their results also showed that income inequality increased between 1977 and 1989. Karoly (1993) shows that the shape of the income distribution has been changing since 1973 toward greater income inequality. Duncan, Smeeding and Rodgers (1993) have shown that the middle-class has been shrinking.

While rising income inequality may be a cause for concern, we still don't know the economic condition of those at the bottom of the income distribution. Furthermore, the income share numbers do not tell us if the same people are at the bottom year after year. Duncan and Morgan (1981, 1984) examined family income mobility between 1971 and 1978. They found, when looking at income quintiles, that 60 percent of all persons changed their position in the income distribution during the seven year period. Their results show that changes in family composition—births, deaths, divorce, marriage and children leaving home—are the most important factor affecting movement within the income distribution. Sawhill and Condon (1992) examined a variety of issues concerning the income distribution. They find that individuals were just as mobile within the income distribution in the 1980s as in the 1970s.

The Treasury Department (1992) examined mobility within the income distribution between 1979 to 1988. They found a great amount of mobility occurred over the 1980s: over 85 percent of the people in the lowest income quintile had moved up the distribution by 1988. However, they used individual income tax data and the individuals in their sample had to file tax returns in all 10 years of the sample period. This method does not count those who do not work or have spotty work histories. Also individuals were ranked on their own earnings and not that of their family. It is quite possible to have a teen from a rich family earning the minimum wage at a summer job in 1979 being in the lowest income quintile, but becoming a corporate lawyer by 1988 and being in the highest quintile. Is this income mobility?

There are three questions left unanswered: (1) was mobility within the income distribution in the 1980s different from the 1970s? (2) Is there as much mobility when some measure of permanent income is used? and (3) Does movement within the income distribution imply real income changes? This paper focuses on these three questions. The following section of the paper describes the data set and the methods used to address these questions. The results are presented in Section 3 and are discussed in Section 4. Concluding remarks are offered in the final section.

2. Data and Methods

The data set used in this study is the 22-year Michigan Panel Study of Income Dynamics (PSID). The PSID is a nationally representative longitudinal data set that has been ongoing since 1968. The PSID interviewed a national sample of approximately 4,800 U.S. households in 1968 and the number of interviewed households had grown to over 7,000 by 1989. The replacement mechanism of the PSID for births is designed to yield a representative sample in each year. For this study, the PSID yields similarly aged representative samples in the 1970s and the 1980s.

When examining income mobility between two years the individuals had to be in the sample both years. Individuals are ranked on the basis of real total family

income (which includes income from cash transfers), but the income distribution is based on the individual, weighted by the PSID sample weights.[3] This was done because the focus of this paper is not only on mobility within the income distribution but also on absolute changes in income over time. Also, using individual income rather than family income could lead to the situation where the primary family wage earner is at the top of the distribution, but the secondary wage earner and non-earners (e.g., children) are at the bottom of the distribution. Economic well-being is based on the fortunes of the family the individual lives in. The individual is the focus of the analysis because family composition changes from year to year as people are born or marry into a family and people die, couples separate or children leave home.

Mobility within the income distribution was determined by comparing the individual's income decile in the first year (1969 or 1979) to the individual's income decile in the second year (1976 or 1986). This comparison was based first on real annual family income and second on the 5-year average of real family income centered on the year compared.[4] This 5-year average is a proxy for permanent income. For example, permanent income for 1969 is the average of family income (measured in constant dollars) for the years 1967 to 1971. This second measure was examined since income can vary from year to year.[5] The thresholds for each income decile are shown in Appendix Tables A.1 and A.2. The unweighted sample sizes are shown in Tables 1–8.

A further procedure was utilized to examine income mobility. Examining a person's decile rank in two years imposes relativity and sheds little light on whether or not a person's income has increased: a person's decile rank in the distribution can change because their income changed and/or the decile thresholds changed. The procedure creates income groups based on the same fixed dollar income thresholds. For the 1970s (1969 and 1976) the decile thresholds for 1969 were chosen and the 1979 decile thresholds were chosen for the 1980s (1979 and 1986). In this procedure, if someone moved from one income group to another they did so because of a change in their income.

Various measures of association between a person's income decile or group in one year with their decile or group in another year are calculated and reported. Furthermore, a distribution-free test was performed to compare mobility in the 1970s with mobility in the 1980s.

3. Results

The results for income mobility based on real annual income are presented in Tables 1 and 2. In Table 1, the rows show the income decile for 1969 and the columns show the decile based on 1976 family income. Each row and each column sum to 10 percent (within rounding error). The entries in row 2, for example,

[3]Family income for each year was deflated by the CPI-U-X1 with 1982–84 = 100. This index was used rather than the CPI-U because the CPI-U-X1 treats the measurement of housing cost consistently over time.

[4]Individuals had to have been observed in all five years to be included in the sample used to calculate the 5-year averages.

[5]An example would be if a family member won the lottery or hit it big in Vegas in one year.

TABLE 1

INCOME MOBILITY 1969–76 BASED ON RELATIVE THRESHOLDS
(Annual Income)

		1976 Income Decile									
		1	2	3	4	5	6	7	8	9	10
	1	4.70	2.12	0.99	0.61	0.47	0.30	0.27	0.16	0.31	0.05
	2	1.82	2.64	1.96	1.01	1.01	0.56	0.48	0.33	0.14	0.06
	3	0.88	1.23	1.47	2.08	1.34	0.99	0.86	0.50	0.49	0.16
	4	0.61	1.01	1.40	1.61	1.53	1.37	0.93	0.91	0.37	0.25
1969	5	0.47	0.67	0.98	1.44	0.97	1.96	0.97	1.26	0.82	0.46
Income	6	0.47	0.54	0.98	1.05	1.22	1.65	1.63	1.28	0.90	0.29
Decile	7	0.25	0.47	0.80	0.77	0.97	1.23	2.05	1.33	1.40	0.78
	8	0.32	0.58	0.62	0.61	0.89	0.84	1.40	1.66	2.06	1.03
	9	0.29	0.34	0.34	0.48	1.00	0.55	0.99	1.79	1.80	2.42
	10	0.19	0.41	0.47	0.36	0.60	0.52	0.42	0.78	1.73	4.50

Note: Unweighted N: 13,358. Likelihood Ratio Statistic, G^2: 117112.56. Cramér's V: 0.26. Contingency Coefficient: 0.61. Lambda asymmetric: 0.173. *ASE*: 0.0012.

show what happened to the 10 percent of all individuals who were in the second income decile in 1969. As can be seen, 2.64 percent of all individuals were in the second decile in both years, another 1.82 percent fell from the second to the first decile between 1969 and 1976. The other 5.54 percent who were in the second decile in 1969 moved up to higher income deciles by 1976: 1.96 percent to the third decile, 1.01 percent to the fourth etc.

Examination of Table 1 shows that 77 percent of all individuals moved from one decile to another between 1969 and 1976. However, there is less movement from the extremes: 53 percent of the individuals in the bottom decile in 1969 moved up and 55 percent in the top decile in 1969 moved down. Of those who moved within the income distribution between 1969 and 1976, 30 percent moved only within 1 decile and another 17 percent moved within 2 deciles. All in all, seven-tenths of all individuals either remained in their original decile or moved

TABLE 2

INCOME MOBILITY 1979–86 BASED ON RELATIVE THRESHOLDS
(Annual Income)

		1986 Income Decile									
		1	2	3	4	5	6	7	8	9	10
	1	4.90	1.87	0.97	0.74	0.48	0.33	0.31	0.20	0.15	0.06
	2	2.01	2.73	1.42	1.28	0.73	0.66	0.49	0.33	0.17	0.16
	3	0.67	1.51	2.00	1.73	1.27	1.01	0.85	0.44	0.33	0.21
	4	0.65	1.25	1.62	1.67	1.50	1.07	0.84	0.70	0.54	0.13
1979	5	0.36	0.87	0.97	0.90	1.71	1.83	1.24	1.06	0.79	0.32
Income	6	0.36	0.54	0.84	1.18	1.00	1.72	1.73	1.26	1.01	0.34
Decile	7	0.39	0.44	0.70	0.87	1.04	1.17	1.49	1.75	1.28	0.89
	8	0.21	0.19	0.52	0.46	0.87	0.71	1.27	1.83	2.26	1.76
	9	0.30	0.35	0.61	0.74	0.82	0.80	0.95	1.38	2.11	1.92
	10	0.15	0.26	0.35	0.42	0.60	0.70	0.85	1.05	1.38	4.21

Note: Unweighted N: 12,858. Likelihood Ratio Statistic, G^2: 153831.81. Cramér's V: 0.26. Contingency Coefficient: 0.61. Lambda asymmetric: 0.168. ASE: 0.0011.

within two deciles between 1969 and 1976. Obviously, there is much movement within the income distribution but generally it is not very great in either direction. The same trends are approximately true when comparing mobility between 1979 and 1986.

Various measures of association are shown at the bottom of each table. These measures are described in Bishop, Fienberg and Holland (1975). The likelihood ratio statistic G^2 tests the null hypothesis that there is complete independence of the rows and columns (i.e., all the entries in the table are the same). It is distributed asymptotically as $\chi^2$with 81 degrees of freedom. As can be seen from Tables 1 and 2 the null hypothesis of no association can be comfortably rejected at any conventional significance level.

Another measure, the lambda asymmetric ($\lambda_{C|R}$) can be interpreted as the improvement in predicting the column variable (the second year decile rank) given knowledge of the row variable (the first year decile rank).[6] The results from tables 1 and 2 show that $\lambda_{C|R}$ is significantly different from 0, but considerably less than 1. This suggests that knowing a person's decile rank in the income distribution in one year is of some use in predicting their rank in another year.

Two last measures of association are shown in the tables that also aid in comparing one table to another. Cramér's V has a range of -1 to 1 while the contingency coefficient has a range between 0 and 1. These two measures are the same for Tables 1 and 2 suggesting that the degree of association between a person's decile rank in one year and another was the same in the 1970s and 1980s.

Overall mobility within the income distribution appears to be the same in the 1970s and 1980s. There are, however, some subtle differences. Between 1969 and 1976 a greater proportion of the people in the bottom 5 deciles improved their decile rank than was true between 1979 and 1986. For example, almost 54 percent of the people in the 4th decile in 1969 moved to a higher decile by 1976. Between 1979 and 1986 only 48 percent moved up and out of the 4th decile. Conversely, a greater proportion of people in the 6th, 7th and 8th deciles moved up in the 1980s compared to the 1970s.

A less clear pattern is discernible when examining the proportion of each decile that fell in the distribution. A slightly higher proportion fell from the 2nd–4th, 7th, 9th and 10th deciles in the 1980s than in the 1970s. Interestingly, the proportion that fell from the 8th decile in the 1970s is considerably more than the proportion that fell in the 1980s (52 percent vs. 42 percent).

So far, I have been examining mobility within the income distribution on the basis of annual income. Tables 3 and 4 are comparable to Tables 1 and 2, but an individual's decile rank is determined on the basis of the 5-year average of family income centered on the year in question. As can be seen there appears to be no

[6]The range of lambda is 0–1. It will be 0 when knowledge of the row variable is of no help in predicting the column variable and 1 if knowledge of one completely specifies the other. When lambda is neither 0 nor 1 it has a sampling distribution that is asymptotically normal. The mean and asymptotic standard error are shown at the bottom of each table.

TABLE 3

INCOME MOBILITY 1969–76 BASED ON RELATIVE THRESHOLDS
(Permanent Income)

		1976 Income Decile									
		1	2	3	4	5	6	7	8	9	10
	1	6.16	1.94	0.85	0.51	0.21	0.25	0.06	0.03	0.00	0.00
	2	1.71	2.70	2.25	1.22	0.79	0.57	0.30	0.22	0.17	0.05
	3	0.74	1.72	1.78	2.03	1.36	0.90	0.73	0.54	0.13	0.08
	4	0.49	1.21	1.28	1.82	1.70	1.46	0.82	0.78	0.32	0.16
1969	5	0.28	0.92	1.16	1.06	1.76	1.67	1.13	1.15	0.59	0.27
Income	6	0.16	0.52	0.98	1.10	1.50	1.41	1.70	1.43	0.94	0.24
Decile	7	0.18	0.31	0.72	0.96	0.68	1.76	1.71	1.70	1.35	0.62
	8	0.10	0.28	0.43	0.45	0.97	0.96	1.88	2.09	2.11	0.76
	9	0.08	0.21	0.32	0.48	0.79	0.64	0.99	1.29	2.59	2.61
	10	0.11	0.18	0.22	0.36	0.24	0.38	0.70	0.77	1.80	5.22

Note: Unweighted N: 12,586. Likelihood Ratio Statistic, G^2: 203248.88. Cramér's V: 0.32. Contingency Coefficient: 0.69. Lambda asymmetric: 0.198. ASE: 0.0012.

major differences in the various measures of association for Table 3 and Table 4.[7] The null hypothesis that there is no association between a person's decile rank in the first year (1969 or 1979) and the second year (1976 or 1986) can be firmly rejected at normal significance levels. The $\lambda_{C|R}$ is significantly different from 0 in both tables, and Cramér's V is the same for both Tables 3 and 4, as is the contingency coefficient.

Between 1969 and 1976, 27 percent of all individuals did not move from their original decile and the same proportion remained in their original decile between

TABLE 4

INCOME MOBILITY 1979–86 BASED ON RELATIVE THRESHOLDS
(Permanent Income)

		1986 Income Decile									
		1	2	3	4	5	6	7	8	9	10
	1	6.01	2.05	0.93	0.45	0.25	0.13	0.08	0.05	0.03	0.02
	2	1.86	2.94	2.14	1.21	0.79	0.46	0.20	0.26	0.11	0.05
	3	0.86	1.93	2.09	2.05	1.36	0.67	0.43	0.29	0.23	0.07
	4	0.48	0.93	1.50	1.71	1.78	1.45	1.02	0.68	0.35	0.12
1979	5	0.27	0.79	1.20	1.41	1.55	1.76	1.34	0.95	0.58	0.16
Income	6	0.13	0.47	0.47	1.16	1.05	2.04	1.99	1.63	0.74	0.30
Decile	7	0.10	0.31	0.59	0.68	1.35	1.35	1.55	1.75	1.61	0.72
	8	0.06	0.21	0.35	0.60	0.61	0.96	1.45	1.85	2.72	1.18
	9	0.18	0.22	0.53	0.41	0.75	0.75	1.11	1.52	2.11	2.43
	10	0.05	0.15	0.20	0.32	0.52	0.43	0.82	1.02	1.53	4.95

Note: Unweighted N: 11,901. Likelihood Ratio Statistic, G^2 221458.69. Cramér's V: 0.32. Contingency Coefficient: 0.69. Lambda asymmetric: 0.205. ASE: 0.0012.

[7]The samples used for the analyses of permanent income are slightly smaller than the samples for the annual income analyses (unweighted sample sizes are shown in each table). The annual income analyses were repeated with the samples for the permanent income analyses to verify that the different sample yielded consistent results. The results are virtually identical to those reported in Tables 1 and 2.

1979 and 1986. There appears to be less movement at the extremes: about 60 percent of the individuals in the lowest decile in the first year were still there seven years later, which is a higher percentage than that based on annual income. The likelihood that an individual will remain in the bottom decile is much greater than the likelihood a person will remain in the top decile. Again people appear to be quite mobile within the distribution, but most individuals do not move far: of those who did move in the 1970s almost 70 percent moved up or down by 2 deciles while 85 percent of those who moved in the 1980s moved up or down by 2 deciles. All in all, over three-fourths of all individuals remained in the same decile or moved within 2 deciles during the 1970s and almost 90 percent did so in the 1980s.

The same general pattern as with annual income develops when examining the proportion of each decile in the first year that moved up or down in the distribution by the second year. A larger proportion of the top decile moved down in the 1980s than in the 1970s. As was the case with annual family income, a much larger fraction of the 8th decile moved up in the 1980s than in the 1970s (39 percent vs. 29 percent) and a much smaller fraction moved down (42 percent vs. 51 percent). Furthermore, a slightly greater proportion in the bottom 5 deciles moved up in the 1970s than in the 1980s (51 percent vs. 49 percent) and a greater proportion of the 6th, 7th, and 8th deciles moved up in the 1980s than in the 1970s (42 percent vs. 36 percent).

The degree of association of an individual's decile rank in two years was generally the same in the 1970s and the 1980s. This was true when the income measure is annual family income or permanent family income. As expected the degree of association is greater when permanent income is considered. Cramér's V, the contingency coefficient, and $\lambda_{C|R}$ for Tables 3 and 4 are all greater than those measures for Tables 1 and 2.

The question arises as to whether or not the subtle differences between the 1970s and 1980s are significant. One last test, the Kolmogorov-Smirnov test, was performed. The people in each decile in the first year are distributed throughout the distribution is subsequent years. The rows in Table 1, for example, can each be thought of as separate distributions. The Kolmogorov-Smirnov test tests the null hypothesis that the distribution of the first row of Table 1, for example, is the same as the distribution of the first row of Table 2.[8] The test statistics for the Kolmogorov-Smirnov test comparing Table 1 to Table 2 and Table 3 to Table 4 fall between 1.520 and 11.731. The lower bound is still greater than the critical value of 1.360 at the 5 percent significance level. The null hypothesis of how each first year decile (row) is distributed in subsequent years was the same in the 1970s and the 1980s can be rejected at normal significance levels.

[8]The Kolmogorov-Smirnov test is a distribution-free or nonparametric test. The null hypothesis that two populations are identical is tested against the alternative that they are not. It is well suited for the problem at hand because causal observation shows that the distributions vary from row to row in each table and do not appear to be drawn from the standard distributions (e.g., normal and lognormal). See Hollander and Wolfe (1973) for an explanation of this test.

TABLE 5

INCOME MOBILITY 1969–76 BASED ON FIXED THRESHOLDS
(Annual Income)

		1976 Income Ranking									
		1	2	3	4	5	6	7	8	9	10
	1	5.20	1.87	0.78	0.59	0.44	0.21	0.35	0.15	0.30	0.14
	2	2.15	2.86	1.43	0.97	0.77	0.58	0.52	0.33	0.25	0.14
	3	0.99	1.46	1.24	1.88	0.98	0.94	1.04	0.65	0.46	0.37
	4	0.84	1.18	1.12	1.40	1.07	1.21	1.24	0.67	0.84	0.41
1969	5	0.51	0.86	0.79	1.35	0.83	1.16	1.58	0.92	1.15	0.84
Income	6	0.53	0.61	0.92	0.97	0.53	1.39	1.60	1.55	1.25	0.66
Decile	7	0.34	0.52	0.69	0.70	0.49	1.10	1.60	1.71	1.34	1.52
	8	0.36	0.74	0.41	0.60	0.67	0.71	1.07	1.38	1.92	2.14
	9	0.30	0.39	0.30	0.42	0.73	0.52	0.73	1.14	2.10	3.36
	10	0.29	0.39	0.40	0.32	0.41	0.55	0.35	0.60	1.20	5.49
Total		11.5	10.9	8.1	9.2	6.9	8.4	10.1	9.1	10.8	15.0

Note: Unweighted N: 13,358. Likelihood Ratio Statistic, G^2: 113033.88. Cramér's V: 0.25. Contingency Coefficient: 0.60. Lambda asymmetric: 0.143. ASE: 0.0010.

Tables 5–8 look at mobility using fixed dollar thresholds to assign people to income groups. The income thresholds are the decile thresholds (in constant dollars) for the first year (1969 or 1979). For example, in Table 5 the income thresholds for income groups in both 1969 and 1976 are the decile thresholds for 1969 (which are listed in Table A.1 under the column headed 1969). Each row of the tables sum to 10 percent and the column totals are displayed in the last row of each table. The mobility results from using the fixed thresholds will be different from the results obtained using relative threshold because the decile thresholds change from one year to another. For example, between 1969 and 1976, the decile thresholds fell for the bottom 3 deciles and increased for the rest (see Table A.1).

TABLE 6

INCOME MOBILITY 1979–86 BASED ON FIXED THRESHOLDS
(Annual Income)

		1986 Income Ranking									
		1	2	3	4	5	6	7	8	9	10
	1	5.69	1.53	0.75	0.76	0.25	0.29	0.24	0.29	0.13	0.07
	2	2.71	2.69	1.37	1.04	0.41	0.62	0.45	0.30	0.19	0.22
	3	1.04	1.92	1.94	1.57	0.87	0.83	0.82	0.35	0.44	0.24
	4	0.84	1.68	1.54	1.71	1.15	0.79	0.77	0.76	0.57	0.21
1979	5	0.45	1.18	0.84	1.22	1.49	1.46	0.88	1.22	0.79	0.48
Income	6	0.43	0.79	1.02	1.06	0.72	1.58	1.37	1.61	0.85	0.58
Decile	7	0.52	0.53	0.77	0.84	0.82	1.10	1.15	1.82	1.29	1.15
	8	0.28	0.31	0.58	0.53	0.57	0.63	1.07	1.68	2.22	2.14
	9	0.40	0.47	0.65	0.85	0.51	0.63	0.86	1.29	1.83	2.49
	10	0.21	0.33	0.40	0.51	0.54	0.56	0.74	0.88	1.21	4.63
Total		12.6	11.4	9.9	10.1	7.3	8.5	8.3	10.2	9.5	12.2

Note: Unweighted N: 12,858. Likelihood Ratio Statistic, G^2: 130187.25. Cramér's V: 0.25. Contingency Coefficient: 0.61. Lambda asymetric: 0.157. ASE 0.0010.

The thresholds for the bottom five deciles declined between 1979 and 1986, and increased for the top five.

The various measures of association show that the null hypothesis of no association between an individual's income group in two years can be rejected, regardless of how family income is measured. Cramér's V, the contingency coefficient and $\lambda_{C|R}$ all indicate that there is closer association between income ranks when permanent family income is used than with annual income. Roughly, three-quarters of all individuals moved from one income group to another in both the 1970s and 1980s. This result is true whether annual or permanent family income is used to assigned people to income groups. Tables 5 and 6 show that almost 68 percent remained in the same group or moved within 2 groups in the 1970s and 69 percent did so in the 1980s.

In 1969, 30 percent of the sample occupied the bottom three groups. By 1976 that number had increased slightly to 30.5 percent. Over this same period the top three income groups increased to almost 35 percent of the sample. However, in the 1980s the change at the bottom was more pronounced: by 1986 the bottom three groups had increased to almost 34 percent. The top three income groups increased to about 32 percent. In both decades the proportion occupying the middle four groups fell to around 34 percent.

A different story is revealed when permanent income is used (see Tables 7 and 8). In the 1970s the fraction of the sample in the bottom three income groups actually fell from 30 percent to 28 percent. Conversely, the fraction in the bottom three groups increased to 33 percent between 1979 and 1986. As before the proportion in the top three groups increased during the 1970s and the 1980s to 38 percent and 34 percent respectively. The Kolmogorov-Smirnov test rejects the null hypothesis that the distribution in each row of Table 5 (Table 7) is identical to the comparable row of Table 6 (Table 8) for all rows.[9]

TABLE 7

INCOME MOBILITY 1969–76 BASED ON FIXED THRESHOLDS
(Permanent Income)

		1976 Income Ranking									
		1	2	3	4	5	6	7	8	9	10
	1	6.40	1.70	0.80	0.38	0.29	0.15	0.21	0.04	0.02	0.00
	2	1.96	2.47	1.97	1.01	0.83	0.53	0.56	0.36	0.23	0.07
	3	0.89	1.60	1.17	1.71	1.53	0.96	0.90	0.65	0.43	0.17
	4	0.54	1.17	0.94	1.32	1.50	1.29	1.38	0.87	0.78	0.22
1969	5	0.33	0.87	0.87	1.02	0.80	1.73	1.45	1.16	1.18	0.60
Income	6	0.25	0.43	0.85	0.85	0.90	1.25	1.58	1.51	1.57	0.81
Decile	7	0.18	0.32	0.53	0.71	0.79	0.69	1.83	1.65	1.84	1.47
	8	0.11	0.27	0.35	0.38	0.64	0.72	1.03	1.88	2.98	1.64
	9	0.11	0.19	0.20	0.41	0.49	0.69	0.65	0.99	2.20	4.08
	10	0.11	0.18	0.21	0.24	0.28	0.15	0.52	0.81	0.98	6.54
Total		10.9	9.2	7.9	8.0	8.1	8.2	10.1	9.9	12.2	15.6

Note: Unweighted N: 12,586. Likelihood Ratio Statistic, G^2: 162653.75. Cramér's V: 0.31. Contingency Coefficient: 0.68. Lambda assymetric: 0.180. ASE: 0.0011.

[9]These results are available from the author on request.

TABLE 8

INCOME MOBILITY 1979 86 BASED ON FIXED THRESHOLDS
(Permanent Income)

		1986 Income Ranking									
		1	2	3	4	5	6	7	8	9	10
	1	6.83	1.73	0.58	0.32	0.28	0.03	0.12	0.05	0.04	0.02
	2	2.82	2.72	1.72	0.93	0.75	0.37	0.21	0.26	0.11	0.10
	3	1.27	2.14	1.99	1.85	1.06	0.53	0.47	0.33	0.21	0.15
	4	0.69	1.22	1.43	1.59	1.48	1.27	0.94	0.72	0.49	0.17
1979	5	0.40	1.06	1.10	1.28	1.48	1.28	1.32	1.13	0.59	0.36
Income	6	0.21	0.57	0.57	1.02	0.92	1.67	1.64	2.09	0.90	0.41
Decile	7	0.15	0.44	0.59	0.67	1.23	1.03	1.20	1.94	1.70	1.06
	8	0.07	0.30	0.37	0.61	0.56	0.65	1.04	1.87	2.49	2.03
	9	0.21	0.39	0.44	0.39	0.68	0.68	0.80	1.34	2.01	3.08
	10	0.07	0.20	0.19	0.35	0.45	0.39	0.39	1.17	1.17	5.63
Total	12.7	10.8	9.0	9.0	8.9	7.9	8.1	10.9	9.7	13.0	

Note: Unweighted N: 11,901. Likelihood Ratio Statistic, G^2: 185013.25. Cramér's V: 0.31. Contingency Coefficient: 0.68. Lambda assymetric: 0.196. ASE: 0.0011.

In general these tables suggest that income inequality increased in both the 1970s and the 1980s. The proportion of people with income below the 1969 30th income percentile had increased slightly by 1976 while the fraction with income above the 1969 80th income percentile had increased. This overall trend was also true between 1979 and 1986. The fraction in the extremes grew thus lowering the proportion in the middle.

In order to shed light on the extent that mobility within the income distribution is due to income changes rather than changes in the decile thresholds it is necessary to compare Tables 1 through 4 with Tables 5 through 8. Focusing on annual income (Tables 1 and 5), 53 percent of the people in the bottom decile in 1969 had moved to a higher decile by 1976. However, 48 percent of the people in the bottom decile moved above the 1969 income threshold for that decile. Overall in the 1970s, slightly fewer people moved above fixed income thresholds than moved up to higher deciles in the first, second, and third deciles.[10] At the other extreme, 55 percent of those in the top decile in 1969 fell to a lower one, but only 45 percent fell below the 1969 income threshold for this decile. The same trend was apparent in the 1980s as well as with permanent income.

Lastly, two tables examine the fortunes of the occupants of each decile in the first year (1969 or 1979) over each decade. Table 9 examines the fortunes of each decile over a seven year period (1969–1976 or 1979–1986). Column 2 of Table 9 shows the average real annual family income for each decile in 1969 and 1979. The percent change in real annual family income between 1969 and 1976 or between 1979 and 1986 was calculated for each individual. Column 3 shows the median percent change in income for individuals based on their first year (1969 or 1979) decile. The next four columns show how the percent changes are

[10]Table A.1 shows that the income thresholds for these three deciles fell between 1969 and 1976.

distributed. As can be seen, the results are generally consistent with regression toward the mean.

Between 1969 and 1976, for the most part, the median percent change in income decreased moving from the first decile to the top decile. For the first decile, the median change in income was a positive 52.2 percent while the median for the top decile was a negative 15.0 percent. Also, over 50 percent of the individuals in the top decile in 1969 experienced a fall in income of over 10 percent and over 50 percent in deciles 8–10 in 1969 experienced a fall in real income. The same general pattern is apparent for the 1980s, but the median percent changes for each decile are smaller with the exception of the 8th decile. These results are in contrast to the findings of Sawhill and Condon who found that average annual income increased for every quintile.[11] With the exception of those in the 8th decile, the proportion whose real income increased by more than 10 percent fell between the 1970s and the 1980s. For the 1st decile, the proportion fell dramatically from 70 percent in the 1970s to 59.3 percent in the 1980s.

Table 10 examines the average annual income of those people who occupied the same decile in both the first year (1969 or 1979) and the second year (1976

TABLE 9

INCOME MEANS BY FIRST YEAR DECILE AND PERCENT CHANGES IN ANNUAL INCOME
(In Constant Dollars)

	1969–76					
			Proportion of Decile Within Range			
Decile	1969 Average	Median % Change	< −10%	−10–0%	0–10%	>10%
1	6,147	52.2	19.3	5.6	4.9	70.2
2	11,954	20.8	27.8	7.2	5.9	59.1
3	16,496	24.5	24.3	6.4	6.7	62.6
4	20,289	15.7	30.7	5.8	8.7	54.9
5	23,978	18.1	33.2	5.6	5.3	55.9
6	27,606	8.5	34.4	6.7	11.7	47.2
7	32,175	3.4	36.0	9.8	8.9	45.3
8	37,691	−3.0	42.6	10.5	8.5	38.4
9	45,159	−4.4	43.8	11.9	6.5	37.7
10	69,770	−15.0	53.9	9.7	5.3	31.2
	1979–86					
			Proportion of Decile Within Range			
Decile	1979 Average	Median % Change	< −10%	−10–0%	0–10%	>10%
1	6,054	28.5	25.4	6.4	8.9	59.3
2	12,130	14.5	33.8	7.2	6.7	52.2
3	17,711	15.2	31.0	9.9	7.3	51.7
4	22,638	−0.2	41.8	8.5	7.2	42.4
5	27,108	4.3	34.2	11.6	9.4	44.9
6	31,591	1.3	38.9	9.4	9.8	41.9
7	36,711	−1.2	42.9	7.3	9.3	40.4
8	43,460	4.3	37.8	8.7	8.9	44.6
9	53,748	−18.9	57.9	6.2	7.2	28.7
10	87,211	−24.2	60.9	4.7	4.3	30.1

[11]When calculating average income for each decile, the average for those in deciles 9 and 10 in the first year fell.

TABLE 10

INCOME MEANS FOR DECILE NONMOVERS—ANNUAL INCOME
(In Constant Dollars)

Decile	1969	1976	1979	1986
1	5,646	5,491	5,758	5,278
2	11,681	11,004	12,166	12,066
3	16,550	15,886	17,771	17,512
4	20,397	20,609	22,812	22,600
5	23,825	24,789	27,206	26,945
6	27,678	30,071	31,484	31,508
7	32,006	35,066	36,392	36,760
8	37,932	41,450	43,480	43,918
9	44,656	51,475	53,317	53,975
10	71,078	87,338	91,918	116,740

or 1986). In the 1970s, as expected, average income declined for those remaining in the lowest three deciles since the decile cutoffs for these groups decreased between 1969 and 1976. The average increased for those remaining in the top seven deciles. A very different picture emerges in the 1980s: average income fell for those who remained in the bottom five deciles and rose for the top five. The same pattern is seen when permanent income is used instead of annual income.[12]

4. DISCUSSION

The previous section contained many numbers on mobility and income. In this section, I will take the results presented in Section 3 and try to answer the three questions posed in the introduction.

1. Was mobility within the income distribution in the 1980s different from the 1970s? If the focus is only on broad measures of mobility then the answer is no, which is in line with the findings of Sawhill and Condon. For the most part there was considerable movement within the distribution during the two observation periods (1969–76 and 1979–86), but the movement generally is not very great in either direction. The rags to riches success stories are fairly rare as well as riches to rags sob stories.

There are, however, subtle differences between the 1970s and 1980s. One major difference occurs in the 8th decile (the upper-middle class?). This group appears to have been more upwardly mobile (and less downwardly mobile) in the 1980s than in the 1970s. In fact, a larger proportion of those in this decile in the 1980s reached the top decile than was true in the 1970s.

Another difference can be seen when individuals are assigned to income groups that have fixed dollar thresholds in the two years. The bottom income groups grew over the course of the 1980s but did not in the 1970s. In other words those with income below a fixed amount ($20,216 in constant dollars) increased between 1979 and 1986. In addition, over the same time period, those with income above $39,638 (in constant dollars) increased. This suggests that the mechanism for increasing income inequality was different in the two decades. In the 1970s,

[12]The results are not shown and are available from the author on request.

TABLE A.1

DECILE INCOME BREAKS—ANNUAL INCOME
(In Constant Dollars)

Break	1969	1976	1979	1986
1	9,391	8,619	9,333	7,756
2	14,347	13,300	15,074	13,230
3	18,388	18,114	20,216	18,248
4	22,190	22,391	25,027	23,099
5	25,634	27,021	29,182	28,312
6	29,702	32,107	33,854	34,115
7	34,992	38,023	39,638	41,186
8	40,610	45,623	47,973	49,452
9	50,762	58,620	60,540	65,146

TABLE A.2

DECILE INCOME BREAKS—PERMANENT INCOME
(In Constant Dollars)

Break	1969	1976	1979	1986
1	10,906	10,487	11,281	9,614
2	15,727	15,692	16,751	15,336
3	19,292	20,182	21,373	20,279
4	22,487	24,262	25,423	24,710
5	25,984	28,517	29,648	29,490
6	29,237	32,680	33,808	35,022
7	33,871	37,997	38,949	41,451
8	39,472	45,353	46,613	49,052
9	49,109	56,852	58,801	64,710

income inequality appears to have increased because the fraction of people in the upper tail (above a fixed income threshold) increased while the fraction in the lower tail (below a fixed income threshold) remained almost constant. In the 1980s, however, the fraction in the upper and lower tails increased at the expense of the middle. This result is generally consistent with the findings of Duncan, Smeeding and Rodgers who observed that in the 1980s the probability of moving up out of the middle-class decreased and the probability of falling out of the middle-class increased.

2. Is there as much mobility when permanent income is used? Although there is considerable movement within the distribution when permanent income is used, it appears that there is slightly less mobility than when using annual income. This is especially true for the top and bottom deciles. The tendency is for those at the bottom to remain at the bottom and those at the top to remain at the top.[13] Furthermore, those who do move within the distribution generally move up or down by one or two deciles.

3. Does movement within the income distribution imply real income changes? If the average income of those in a decile in the first year is compared to the average of those same people seven years later, the data shows, with the exception

[13]The lesser movement by those at the top and bottom is due, in part, to the fact that there is only one way for these individuals to move within the distribution.

of the top two deciles, that, on average, they live in families with higher real income. However, the evidence also shows that for those who remain in the same decile, average real income changed in predictable ways: those remaining at the bottom tended to have lower income after seven years and those at the top tended to have higher income. In general, the evidence suggests that most but not all of those who move up in the income distribution tend to do so because their income increases not because the decile thresholds have changed. This is equally true for those who move down in the distribution.

5. Concluding Remarks

The results reported here are not as encouraging as those of the Treasury Department (1992). While there appears to be considerable mobility within the income distribution, people do not tend to move far—Horatio Alger success stories are relatively rare. Furthermore, these findings tend to complement those of Solon (1992) and Zimmerman (1992). They found that there is dramatically less intergenerational income mobility than previously reported. Apparently, an individual's position in the income distribution is not far from their parent's position, and their position generally does not change much within a seven year period.

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