

IS THE UNITED STATES STILL A LAND OF OPPORTUNITY? RECENT TRENDS IN INTERGENERATIONAL MOBILITY
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Online Appendix

Appendix Table 1. Number of Observations and Intergenerational Mobility Statistics by Child's Birth Cohort

Birth Cohort	Sample Size		Fraction of Birth Cohort Represented		Rank-Rank Slope			College Attend.	College Quality	Log-Log	Log-Log	Log-Log	Consolidated Series
	SOI Sample	Population	SOI Sample	Population	Income at 29-30	Income at 26	Income at 26	Gradient	Gradient (P75-P25)	Age 29-30	Age 26	Age 26	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1971	4,331		81.5%		0.289	0.234				0.291	0.187		0.289
1972	5,629		83.0%		0.319	0.243				0.346	0.193		0.319
1973	6,179		88.4%		0.274	0.254				0.351	0.281		0.274
1974	7,102		83.7%		0.312	0.244				0.330	0.240		0.312
1975	8,222		85.8%		0.252	0.240				0.254	0.232		0.252
1976	8,257		87.1%		0.282	0.212				0.325	0.202		0.282
1977	8,160		90.4%		0.313	0.224				0.373	0.208		0.313
1978	7,973		88.5%		0.313	0.221				0.338	0.265		0.313
1979	7,593		89.2%		0.330	0.237				0.329	0.240		0.330
1980	7,762	3,092,647	96.1%	85.6%	0.274	0.240	0.273			0.266	0.213	0.274	0.274
1981	8,201	3,323,937	92.7%	91.6%	0.348	0.258	0.279			0.332	0.243	0.271	0.348
1982	9,936	3,448,021	95.8%	93.7%	0.301	0.256	0.274			0.289	0.205	0.257	0.301
1983		3,462,126		95.1%								0.232	0.300
1984		3,535,065		96.3%			0.261	0.745	0.187			0.219	0.291
1985		3,642,863		96.9%			0.262	0.745	0.190			0.217	0.293
1986		3,650,594		97.2%			0.265	0.739	0.188			0.217	0.296
1987		3,711,400		97.4%				0.751	0.192				0.296
1988		3,815,926		97.6%				0.749	0.192				0.296
1989		3,940,398		97.5%				0.746	0.191				0.294
1990		4,048,638		97.4%				0.732	0.189				0.289
1991		3,994,642		97.2%				0.711	0.182				0.281
1992		3,946,445		97.1%				0.711	0.180				0.281
1993		3,870,924		96.8%				0.692	0.174				0.273

Notes: Column 1 reports the number of children in the SOI sample by child's birth cohort (which is less than the total number of parent-child observations because of repeated parent sampling across years). Column 2 reports the number of children in the population-based sample. Columns 3 and 4 report the fraction of the birth cohort represented, which is equal to the total sample size (using SOI sampling weights for the SOI sample) divided by the size of the birth cohort, based on vital statistics from the Human Mortality Database at UC-Berkeley. Columns 5-8 present estimates from OLS regressions of child outcomes on parent income ranks by cohort. Columns 5-7 regress child income rank on parent income rank. In the population-based sample, ranks are defined within cohort. In the SOI sample, we define ranks by cohort and SOI cross-section year and use sampling weights in all regressions. Column 5 uses child income averaged across ages 29-30, while 6 and 7 use child income at age 26. Column 8 reports the slope of a regression of college attendance, measured as an indicator for the presence of a 1098-T form in the tax year where the child turns 19, on parent income rank. Column 9 reports the difference in average college quality percentile rank between children with parents around the 75th percentile (percentiles 72 to 78) and children with parents around the 25th percentile (percentiles 22 to 28). College quality, taken directly from Chetty, Friedman, and Rockoff (2013), is defined as the mean income at age 31 of children born in 1979-80 based on the college they attended at age 20; those not enrolled in any college are included in a separate category. Columns 10-12 report regressions similar to Columns 5-7, but regress log child income on log parent income in place of child and parent ranks used in Columns 5-7. These log-log regressions drop observations in which the child has zero income. Column 13 reports the consolidated series, where estimates for cohorts 1971-1982 are taken from Column 5 and the estimates for 1983-1993 are constructed based on Columns 7 and 8 as described in the text.

Appendix Table 2. Summary Statistics for SOI and Population-Based Samples

Sample: Variable:	SOI Sample			Population		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
	(1)	(2)	(3)	(4)	(5)	(6)
<i>A. 1980-1982 Cohorts</i>						
<u>Parents:</u>						
Parent Family Income (1996-2000 mean)	86,489	54,272	417,928	87,219	60,129	353,430
Parent Income in Year Matched to Child	76,551	55,562	347,071			
Fraction Single Parents	31.4%		46.4%	30.6%		46.1%
Fraction Single Parents Female	65.9%		47.4%	72.0%		44.9%
Father's Age at Child Birth	28.8	28	6.8	28.5	28	6.2
Mother's Age at Child Birth	26.3	26	6.3	26.1	26	5.2
Father's Age When Linked to Child	42.8	42	7.0	43.5	43	6.3
Mother's Age When Linked to Child	40.3	40	6.5	41.1	41	5.2
<u>Children:</u>						
Child Family Income (2011-2012 mean)	47,696	34,146	92,397	48,050	34,975	93,182
Child Family Income (Age 29-30 mean)	45,754	32,892	128,877			
Fraction with Zero Income (Age 29-30)	6.8%		25.2%	6.1%		23.9%
Fraction Female	49.4%		50.0%	50.0%		50.0%
<i>B. 1971-1982 Cohorts</i>						
<u>Parents:</u>						
Parent Family Income (1996-2000 mean)	89,130	56,594	493,685			
Parent Income in Year Matched to Child	75,858	57,700	379,827			
Fraction Single Parents	29.2%		45.5%			
Fraction Single Parents Female	64.6%		47.8%			
Father's Age at Child Birth	28.4	28	10.4			
Mother's Age at Child Birth	25.8	25	6.3			
Father's Age When Linked to Child	42.6	42	10.4			
Mother's Age When Linked to Child	40.0	40	6.4			
<u>Children:</u>						
Child Family Income (2011-2012 mean)	58,428	40,742	102,713			
Child Family Income (Age 29-30 mean)	49,923	37,553	119,273			
Fraction with Zero Income (Age 29-30)	5.4%		22.7%			
Fraction Female	49.2%		50.0%			

Notes: The table presents summary statistics for the SOI sample (using sampling weights) in columns 1-3 and the population-based sample used in Chetty et al. (2014) in columns 4-6. Panel A restricts to children in the 1980-82 birth cohorts, while Panel B uses all cohorts in the SOI sample, 1971-1982. The SOI sample includes all individuals alive at age 30 with a valid SSN or ITIN for whom we are able to identify parents based on dependent claiming in SOI cross-sections. The population-based sample includes all current U.S. citizens with a valid SSN or ITIN for whom we are able to identify parents based on dependent claiming (at any point from 1996-2012). Family income is total pre-tax household income as defined in the text. Parents' marital status is measured in the year the parent is matched to the child. In the population-based sample, the age in which parent is linked to child is measured in 1996, the most common year in which parents are linked to children. A child is defined as single if he/she does not file with a spouse in both 2011 and 2012. All dollar values are reported in 2012 dollars, deflated using the CPI-U-RS consumer price index. See Chetty et al. (2014) for additional summary statistics for the population-based sample.

Appendix Table 3. Intergenerational Mobility Statistics by Child Gender

Birth Cohort	Rank-Rank Slope, Income at 29-30 SOI Sample		Rank-Rank Slope, Income at 26 Pop.-Based Sample		College Attendance Gradient Pop.-Based Sample		Consolidated Series	
	Female	Male	Female	Male	Female	Male	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1971	0.298	0.280					0.298	0.280
1972	0.316	0.322					0.316	0.322
1973	0.291	0.262					0.291	0.262
1974	0.304	0.317					0.304	0.317
1975	0.252	0.252					0.252	0.252
1976	0.314	0.251					0.314	0.251
1977	0.282	0.342					0.282	0.342
1978	0.330	0.303					0.330	0.303
1979	0.349	0.311					0.349	0.311
1980	0.276	0.273	0.281	0.266			0.276	0.273
1981	0.335	0.365	0.284	0.274			0.335	0.365
1982	0.336	0.270	0.280	0.270			0.336	0.270
1983			0.272	0.265			0.305	0.297
1984			0.267	0.255	0.739	0.752	0.300	0.286
1985			0.269	0.256	0.736	0.757	0.301	0.286
1986			0.269	0.261	0.730	0.750	0.302	0.292
1987					0.740	0.763	0.303	0.292
1988					0.736	0.763	0.301	0.292
1989					0.732	0.761	0.300	0.291
1990					0.714	0.751	0.292	0.287
1991					0.692	0.731	0.283	0.280
1992					0.692	0.732	0.283	0.280
1993					0.669	0.715	0.274	0.274

Notes: This table presents estimates of intergenerational mobility by birth cohort and gender. Ranks are defined in the full sample (pooling males and females). Columns 1-4 report coefficient estimates from OLS regressions of child income rank on parent income rank, replicating the specifications in Columns 5 and 7 of Appendix Table 1 conditioning on child gender. Columns 5-6 report coefficients from regressions of college attendance on parent income rank, replicating the specification in Column 8 on Appendix Table 1 conditioning on child gender. Columns 7 and 8 report consolidated series, which are constructed in the same way as column 13 of Appendix Table 1, with separate scaling factors by gender.

Appendix Table 4. Probabilities of Child Reaching Top Income Quintile Conditional on Parent Income Quintile

Birth Cohort	SOI Sample, Income at 26					Population Sample, Income at 26					SOI Sample, Income at 29-30				
	Parent Quintile					Parent Quintile					Parent Quintile				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1971	8.4%	17.7%	18.5%	24.5%	31.1%						5.9%	16.7%	15.8%	24.6%	36.9%
1972	10.7%	16.2%	17.4%	25.4%	30.5%						8.5%	13.0%	19.6%	23.7%	35.2%
1973	10.0%	16.0%	21.2%	24.9%	27.9%						9.5%	13.2%	21.1%	25.3%	30.8%
1974	9.0%	15.4%	20.4%	26.5%	29.0%						7.3%	13.2%	20.1%	26.6%	33.1%
1975	10.1%	12.9%	20.4%	26.5%	30.3%						8.6%	16.1%	19.5%	23.3%	32.6%
1976	9.3%	17.4%	22.8%	22.1%	28.7%						9.4%	15.7%	19.3%	21.4%	34.4%
1977	9.5%	18.7%	19.9%	25.9%	26.1%						9.0%	14.2%	16.3%	25.8%	34.8%
1978	10.9%	16.9%	19.6%	22.8%	29.8%						8.7%	15.9%	20.4%	21.7%	33.3%
1979	11.7%	15.4%	21.0%	23.1%	29.1%						8.5%	11.9%	20.8%	26.3%	32.8%
1980	12.2%	14.7%	18.4%	23.8%	31.0%	9.3%	14.6%	20.0%	25.3%	30.7%	8.1%	13.9%	21.4%	22.0%	34.8%
1981	11.1%	13.7%	20.9%	22.9%	31.5%	9.2%	14.3%	20.1%	25.4%	31.1%	6.1%	12.0%	20.8%	26.5%	34.8%
1982	8.4%	14.5%	22.2%	25.8%	29.3%	9.2%	14.3%	20.0%	25.5%	31.0%	8.8%	12.6%	21.7%	24.8%	32.1%
1983						9.0%	14.0%	20.0%	25.7%	31.3%					
1984						9.1%	13.9%	20.0%	25.7%	31.3%					
1985						9.1%	13.8%	19.9%	25.7%	31.5%					
1986						9.0%	13.8%	19.8%	25.7%	31.7%					

Notes: Each cell shows the percentage of children in a birth cohort who reached the top fifth of the income distribution given parents in the quintile specified in the column. Columns 1-5 and 11-15 are computed on the SOI sample using a child's income at age 26 and mean income from age 29-30, respectively. In the SOI sample, parent and child quintiles are defined (using sampling weights) separately within cohort and SOI cross-section year. Columns 6-10 use the population-based sample, measuring a child's family income at age 26 as in columns 1-5. In the population-based sample, child and parent quintiles are defined separately within each birth cohort.

Appendix Table 5. Intergenerational Mobility and College Attendance Rates by Census Division

Birth Cohort	Census Division									
	Pacific	Mountain	New England	West North Central	West South Central	Mid Atlantic	South Atlantic	East North Central	East South Central	All U.S.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
A. College Attendance Gradients										
1984	0.659	0.663	0.722	0.734	0.763	0.754	0.747	0.769	0.818	0.745
1985	0.663	0.662	0.723	0.741	0.754	0.756	0.738	0.774	0.816	0.745
1986	0.660	0.655	0.720	0.710	0.752	0.751	0.741	0.766	0.812	0.739
1987	0.666	0.660	0.729	0.747	0.760	0.754	0.750	0.778	0.816	0.751
1988	0.676	0.653	0.718	0.747	0.751	0.749	0.744	0.783	0.813	0.749
1989	0.652	0.671	0.711	0.756	0.740	0.743	0.750	0.775	0.807	0.746
1990	0.639	0.664	0.700	0.736	0.713	0.733	0.740	0.759	0.786	0.732
1991	0.616	0.627	0.699	0.718	0.697	0.717	0.708	0.736	0.777	0.711
1992	0.609	0.618	0.705	0.718	0.705	0.715	0.716	0.732	0.764	0.711
1993	0.597	0.609	0.696	0.696	0.680	0.691	0.713	0.718	0.742	0.692
B. College Attendance Rates										
1984	0.526	0.462	0.590	0.583	0.452	0.571	0.473	0.532	0.400	0.510
1985	0.528	0.467	0.605	0.585	0.454	0.583	0.485	0.553	0.417	0.520
1986	0.523	0.475	0.607	0.581	0.468	0.571	0.482	0.552	0.411	0.518
1987	0.524	0.484	0.611	0.598	0.464	0.593	0.483	0.558	0.413	0.525
1988	0.522	0.478	0.613	0.597	0.466	0.591	0.484	0.552	0.422	0.522
1989	0.527	0.463	0.619	0.597	0.463	0.596	0.480	0.550	0.421	0.521
1990	0.529	0.474	0.625	0.604	0.462	0.602	0.493	0.564	0.429	0.528
1991	0.525	0.490	0.633	0.599	0.480	0.607	0.489	0.562	0.431	0.530
1992	0.516	0.493	0.632	0.611	0.468	0.606	0.501	0.568	0.439	0.532
1993	0.513	0.488	0.623	0.611	0.464	0.602	0.498	0.563	0.445	0.529
C. Rank-Rank Slopes Using Income at Age 26										
1980	0.185	0.219	0.244	0.248	0.278	0.275	0.307	0.303	0.326	0.273
1981	0.192	0.224	0.251	0.262	0.283	0.285	0.312	0.307	0.331	0.279
1982	0.190	0.221	0.256	0.260	0.277	0.282	0.301	0.309	0.326	0.274
1983	0.181	0.223	0.253	0.261	0.274	0.276	0.290	0.306	0.322	0.268
1984	0.181	0.222	0.250	0.257	0.264	0.269	0.274	0.297	0.312	0.261
1985	0.188	0.226	0.261	0.263	0.262	0.274	0.268	0.299	0.307	0.262
1986	0.190	0.222	0.267	0.267	0.251	0.279	0.281	0.301	0.307	0.265

Notes: This table presents estimates of intergenerational mobility by cohort and census division using the population-based sample. We assign children to Census divisions based on where their parents lived when they claimed them as dependents. Panel A presents estimates of the college attendance gradient by Census division and cohort. For each Census division and cohort, we report the coefficient from a regression of an indicator for college attendance at age 19 on parent income rank. Panel B reports the mean college attendance rates at age 19 by Census division and cohort. Panel C presents the rank-rank slope estimate from a regression of child income rank on parent income rank, where child income is measured at age 26. In both Panel A and Panel C, income ranks are defined nationally, not within each Census division.

Appendix Table 6. Income Inequality by Cohort

Birth Cohort	Gini Coefficient for Children			Gini Coefficient for Parents		Top 1% Income Share for Parents	
	SOI Sample	SOI Sample	Population	SOI Sample	Population	SOI Sample	Population
	2-year average income	Annual income	Annual income	Annual income	5-year average income	Annual income	5-year average income
	Child Age 29-30	Child Age 26	Child Age 26	Child Age 12-16	Child Age 15-19	Child Age 12-16	Child Age 15-19
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1971	0.396	0.449		0.517		10.1%	
1972	0.453	0.478		0.503		11.5%	
1973	0.465	0.434		0.500		11.6%	
1974	0.465	0.445		0.505		11.2%	
1975	0.468	0.453		0.522		11.3%	
1976	0.475	0.476		0.515		11.4%	
1977	0.473	0.495		0.518		11.4%	
1978	0.492	0.498		0.534		11.3%	
1979	0.539	0.530		0.524		11.7%	
1980	0.557	0.515	0.487	0.524	0.497	11.8%	15.8%
1981	0.546	0.500	0.491	0.510	0.506	12.8%	16.4%
1982	0.535	0.505	0.493	0.498	0.511	13.8%	16.4%
1983			0.501		0.517		16.8%
1984			0.502		0.520		16.8%
1985			0.507		0.529		17.6%
1986			0.507		0.535		17.7%
1987					0.550		19.2%
1988					0.568		21.1%
1989					0.574		21.4%
1990					0.575		21.1%
1991					0.577		20.9%
1992					0.574		20.1%
1993					0.564		18.3%

Notes: This table presents income inequality statistics for parents and children using the income definitions and samples that we used to compute intergenerational mobility statistics in Appendix Table 1. Columns 1-3 report Gini coefficients for child family income. In Column 1, we use the SOI sample (with sampling weights) and define child income as mean family income over the 2 years when the child is aged 29-30. Column 2 replicates column 1, measuring child income at age 26 instead of 29-30. Column 3 replicates Column 2 using the population-based sample. Columns 4-5 report Gini coefficients for parent family income and columns 6-7 report top 1% income shares for parent family income. Columns 4 and 6 use the SOI sample, where parent income is measured as the family income in the year the parent is linked to the child (when the child is aged 12 to 16; see text for details). Columns 5 and 7 consider the population-based sample, where parent income is measured as the 5 year average of family income when the child is aged 15 to 19. See Appendix A for a comparison of these trends to estimates based on the CPS.