

SUPPLEMENTARY MATERIALS

This document contains additional tables corresponding to analyses reported in the manuscript, as well as tables and figures of additional analyses.

Tables S1 and S2 provide more detailed results of the analyses testing the sensitivity of direct effect estimates that are summarized in Figure 2.

Table S3 summarizes analyses that include grandparental occupational status (the highest SEI of either maternal grandparent) alongside grandparent education.

Table S4 shows group-specific coefficients and indicates significant group differences for the sequential regression decomposition summarized in Table 2.

Tables S5-S8 provide the decomposition results for highest grade completed and the additional outcomes summarized in Table 3 and Figure 3: high school diploma, college attendance, and Bachelor's degree attainment. These are restricted to cases with complete data for all outcomes.

Tables S9-S12 summarize decompositions of highest grade completed under different robustness checks: attrition adjustments via inverse probability weighting (S9), an alternative ordering of constructs within generations (S10), and different grandparent education groups (less than high school, high school, some college or more) for the highest educated grandparent (S11) and for grandmothers only (S12). Patterns are generally similar, and all analyses attribute the vast majority of multigenerational inequality to indirect effects and attribute very little to direct effects. Results for the model predicting sample retention, used to create the attrition weights, are available on request.

Table S13 summarizes the decomposition for all outcomes when using the larger samples for high school diploma, college, attendance, and bachelor's degree attainment. Compared to the results in the manuscript (Table 3, Figure 3), this analysis explains more inequality in high school completion and college attendance, but it does not alter conclusions about direct/indirect effects or the relative importance of different constructs.

Table S14 summarizes the decompositions for all outcomes under different reference groups using the larger samples (same as Table S13).

Figure S1 shows the results from the decomposition of high-vs-low inequality across the robustness checks.

Figure S2 illustrates the results from larger samples tabulated in Table S13.

Table S1. Sensitivity of Multigenerational Effects to Parental Controls: Highest Grade Completed

	High-Middle		Middle-Low		High-Low	
	Gap	SE	Gap	SE	Gap	SE
Raw Gap	1.413*	(0.192)	0.716*	(0.090)	2.129*	(0.193)
No Interactions						
Mothers + Father's education						
No additional controls	0.741*	(0.174)	0.260*	(0.083)	1.001*	(0.180)
+ Controls	0.307†	(0.162)	-0.088	(0.083)	0.219	(0.173)
Difference (bias)	0.435*	(0.067)	0.348*	(0.049)	0.782*	(0.090)
% Reduction	59%		134%		78%	
Mothers + Father's education + avg. family income and wealth						
No additional controls	0.565*	(0.163)	0.084	(0.079)	0.649*	(0.169)
+ Controls	0.301†	(0.159)	-0.126	(0.081)	0.174	(0.169)
Difference (bias)	0.264*	(0.052)	0.210*	(0.043)	0.475*	(0.075)
% Reduction	47%		250%		73%	
Fully Interacted by Grandparents' Education (Middle group reference)						
Mothers + Father's education						
No additional controls	0.668*	(0.204)	0.254*	(0.087)	0.922*	(0.207)
+ Controls	0.100	(0.222)	-0.076	(0.097)	0.024	(0.231)
Difference (bias)	0.569*	(0.181)	0.330*	(0.065)	0.898*	(0.190)
% Reduction	85%		130%		97%	
Mothers + Father's education + avg. family income and wealth						
No additional controls	0.509*	(0.198)	0.032	(0.083)	0.541*	(0.201)
+ Controls	0.095	(0.225)	-0.143	(0.096)	-0.048	(0.233)
Difference (bias)	0.410*	(0.166)	0.173*	(0.057)	0.583*	(0.174)
% Reduction	81%		538%		108%	

Note: additional controls include antecedents (race, gender, nativity), mothers' upbringing (home reading environment as adolescent, family structure, sibship size), mothers' skills (AFQT, delinquency, locus of control), mothers' educational orientations (expectations, aspirations), and maternal aunts/uncles' education. Estimates based on OLS regressions. Standard errors adjusted for clustering within multigenerational families.

Table S2. Conditional Multigenerational Effects: Highest Grade Completed, OLS Estimates

	Raw	No Interactions				Interactions			
		Par Educ	+ Contr	Par Econ	+ Contr	Par Educ	+ Contr	Par Econ	+ Contr
<i>Grandparents' education</i>									
Low (< HS)	-0.716*	-0.260*	0.088	-0.084	0.126	-0.254*	0.076	-0.021	0.152
High (BA degree)	1.413*	0.741*	0.307†	0.565	0.301	0.668*	0.100	0.529*	0.118
<i>Parents' education</i>									
Mother: HS		0.902*	0.593*	0.673*	0.508*	1.159*	0.803*	0.858*	0.676*
× Low GP Ed						-0.487*	-0.360†	-0.354†	-0.292
× High GP Ed						0.282	-0.783	-0.010	-0.857
Mother: Some college		1.084*	0.591*	0.859*	0.525*	1.090*	0.571*	0.819*	0.487*
× Low GP Ed						0.022	0.099	0.077	0.100
× High GP Ed						0.721	-0.122	0.447	-0.219
Mother: BA		1.824*	1.147*	1.368*	0.951*	1.977*	1.163*	1.449*	0.916*
× Low GP Ed						-0.175	0.276	0.052	0.410
× High GP Ed						0.209	-0.690	-0.090	-0.728
Mother: Grad		1.794*	0.959*	1.278*	0.763*	1.766*	0.811*	1.172*	0.573†
× Low GP Ed						0.055	0.263	0.332	0.416
× High GP Ed						0.969	0.286	0.685	0.177
Father: HS		0.320*	0.218*	0.235*	0.148	0.227	0.107	0.103	0.036
× Low GP Ed						0.095	0.129	0.144	0.130
× High GP Ed						0.808	0.804	0.793	0.764
Father: Some college		0.828*	0.671*	0.651*	0.549*	0.697*	0.494*	0.461*	0.351†
× Low GP Ed						0.224	0.318	0.319	0.366
× High GP Ed						0.465	0.473	0.515	0.421
Father: BA		1.590*	1.245*	1.217*	1.032*	1.246*	0.897*	0.881*	0.716*
× Low GP Ed						0.634	0.682†	0.674†	0.661†
× High GP Ed						1.099	0.877	0.809	0.662
Father: Grad		1.639*	1.188*	1.091*	0.873*	1.775*	1.319*	1.184*	0.970*
× Low GP Ed						-0.291	-0.245	-0.123	-0.104
× High GP Ed						-0.165	-0.508	-0.284	-0.542
<i>Parents' income and wealth</i>									
Log avg. family income				0.519*	0.373*			0.553*	0.410*
× Low GP Ed								-0.123	-0.113
× High GP Ed								0.061	0.135

Avg. net worth (\$1,000s)	0.003*	0.002*		0.002*	0.002*
× Low GP Ed				0.003*	0.003†
× High GP Ed				0.001	0.000
<i>Parent controls</i>					
Female	0.649*	0.641*	0.621*		0.622*
× Low GP Ed			0.096		0.086
× High GP Ed			-0.076		-0.086
Black	-0.018	0.194†	0.000		0.264†
× Low GP Ed			0.081		0.011
× High GP Ed			-0.578		-0.697†
Hispanic	-0.257*	-0.199†	-0.209		-0.163
× Low GP Ed			0.031		0.063
× High GP Ed			-0.757		-0.778
Grandparent immigrant	0.671*	0.562*	0.166		0.060
× Low GP Ed			0.825		0.798
× High GP Ed			-0.625		-0.695
Home reading scale	0.129*	0.096†	0.134		0.117
× Low GP Ed			0.020		-0.007
× High GP Ed			-0.174		-0.235
2-parent biological, 0-18	0.034	-0.016	0.036		-0.016
× Low GP Ed			-0.072		-0.066
× High GP Ed			0.126		0.040
Sibship size	-0.002	-0.001	0.018		0.021
× Low GP Ed			-0.041		-0.044
× High GP Ed			-0.052		-0.072
AFQT percentile	0.015*	0.012*	0.017*		0.014*
× Low GP Ed			-0.003		-0.004
× High GP Ed			0.004		0.000
Delinquency scale	-0.078	-0.057	-0.130		-0.108
× Low GP Ed			0.047		0.028
× High GP Ed			0.410*		0.462*
Locus of control	-0.022	-0.018	-0.003		-0.004
× Low GP Ed			-0.022		-0.011
× High GP Ed			-0.069		-0.078
Educational aspirations	-0.003	-0.005	-0.056		-0.050
× Low GP Ed			0.081		0.071

× High GP Ed							-0.114		-0.107
Educational expectations			0.026		0.018		0.089*		0.065
× Low GP Ed							-0.098†		-0.073
× High GP Ed							0.160		0.166
Avg. schooling, aunts/uncles			0.102*		0.088*		0.096*		0.076*
× Low GP Ed							0.007		0.015
× High GP Ed							-0.008		0.006
Intercept	13.387*	13.388*	13.387*	13.388*	13.387*	13.388*	13.387*	13.387*	13.387*
Observations	4201	4201	4201	4201	4201	4201	4201	4201	4201

*p<.05, †p<.10; full tables with standard errors available on request.

Table S3. Grandparental Status Effects: Highest Grade Completed

	(1)	(2)	(3)	(4)
Grandparents' education				
Low (< HS)	-0.517*	0.065	0.103	0.141
	(0.096)	(0.085)	(0.085)	(0.082)
High (BA degree)	1.036*	0.336*	0.267	0.262
	(0.197)	(0.171)	(0.169)	(0.166)
Grandparents' occupational SEI	0.013*	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	4,201	4,201	4,201	4,201
Parent controls & education		Yes	Yes	Yes
Aunts' & Uncles' education			Yes	Yes
Parent income & wealth				Yes

*p<.05, †p<.10. SEI is the highest score of the maternal grandmother and grandfather, based on the Duncan SEI scale for 1970 occupational codes.

Table S4. Group-Specific Coefficients: Highest Grade Completed

	GP Ed	A _g	F _p	S _p	O _p	E1 _p	E2 _p	F1 _c	F2 _c	S _c	O _c
<i>Antecedents</i>											
Female	L	0.67	0.65	0.71	0.70	0.72	0.71	0.71	0.69	0.53	0.47
	M	0.64	0.62	0.65	0.64	0.62	0.62	0.62	0.59	0.48	0.39
	H	0.63	0.59	0.61	0.65	0.54	0.53	0.53	0.35	0.15	0.05
Black		--	--	--	--	--	--	--	--	--	hl
	L	-0.25	0.05	0.55	0.28	0.08	0.27	0.36	0.50	0.38	0.21
	M	-0.50	-0.27	0.31	0.08	0.00	0.26	0.28	0.45	0.34	0.20
Hispanic	H	-1.39	-1.13	-0.17	-0.64	-0.58	-0.44	-0.40	-0.18	-0.38	-0.66
		HL, HM	HL, HM	--	HL	--	HL, hm	hl	hl	HL, hm	HL, HM
	L	-0.65	-0.39	-0.03	-0.18	-0.18	-0.10	-0.05	0.06	0.00	-0.09
Grandparent immigrant	M	-0.63	-0.50	-0.06	-0.20	-0.21	-0.17	-0.15	-0.05	0.01	-0.04
	H	-2.18	-1.75	-0.94	-1.14	-0.97	-0.94	-0.93	-0.67	-1.23	-1.13
		HL, HM	HL, HM	hl	hl	--	hl	hl	--	HL, HM	HL, HM
Mother's family upbringing	L	0.76	0.84	0.94	0.96	0.99	0.86	0.86	0.83	0.72	0.58
	M	0.24	0.27	0.14	0.13	0.17	0.06	0.07	0.09	0.01	-0.04
	H	-0.12	-0.12	-0.16	-0.07	-0.46	-0.64	-0.63	-0.44	-0.31	-0.32
Home reading scale		hl	HL	HL, ML	HL, ML	HL, ML	HL, ML	HL, ML	HL, ML	HL, ML	HL, ML
	L		0.45	0.30	0.24	0.16	0.11	0.13	0.10	0.13	0.11
	M		0.45	0.22	0.18	0.13	0.12	0.11	0.08	0.03	0.03
2-parent biological, 0-18	H		0.54	0.26	0.12	-0.04	-0.12	-0.12	-0.39	-0.28	-0.16
	L		--	--	--	--	--	--	--	--	--
	M		0.11	0.09	0.05	-0.04	-0.08	-0.06	-0.07	-0.06	-0.07
Sibship size	H		0.34	0.17	0.14	0.04	-0.01	-0.01	-0.01	0.01	0.04
	L		0.65	0.53	0.34	0.16	0.03	0.03	-0.04	-0.10	-0.05
	M		--	--	--	--	--	--	--	--	--
Mother's skills and attributes	H		-0.05	-0.04	-0.03	-0.02	-0.02	-0.02	-0.02	-0.01	-0.02
	L		-0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03
	M		0.00	-0.04	-0.04	-0.03	-0.05	-0.05	-0.03	-0.03	-0.03
AFQT percentile			--	--	--	--	--	--	ml	ml	ML
	L			0.03	0.02	0.01	0.01	0.01	0.01	0.00	0.00
	M			0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Delinquency scale	H			0.03	0.03	0.02	0.01	0.01	0.02	0.00	0.00
	L			--	--	--	--	--	--	--	--
	M			-0.12	-0.13	-0.08	-0.08	-0.08	-0.07	-0.02	0.00
			-0.20	-0.18	-0.13	-0.11	-0.11	-0.07	0.01	0.00	

	H	0.17	0.20	0.28	0.35	0.36	0.39	0.36	0.35
		hm	hm	HL, HM	HL, HM	HL, HM	HL, HM	HL, HM	HL, HM
Locus of control	L	-0.04	-0.03	-0.03	-0.02	-0.01	0.00	0.00	0.00
	M	-0.03	-0.02	0.00	0.00	0.00	0.01	0.01	0.00
	H	-0.09	-0.07	-0.07	-0.08	-0.08	-0.06	-0.04	-0.04
		--	--	--	--	--	--	--	--
<i>Mother's educational orientation</i>									
Educational aspirations	L		0.05	0.02	0.02	0.02	0.01	0.03	0.01
	M		-0.05	-0.06	-0.05	-0.05	-0.06	-0.05	-0.06
	H		-0.12	-0.17	-0.16	-0.17	-0.20	-0.15	-0.04
			ml	--	--	--	--	ml	--
Educational expectations	L		0.09	-0.01	-0.01	0.00	-0.01	-0.01	-0.02
	M		0.17	0.09	0.07	0.06	0.07	0.05	0.05
	H		0.34	0.25	0.23	0.24	0.27	0.24	0.11
			hl	HL, ml	--	--	HL	hl	--
<i>Parents' education</i>									
Mother: HS	L			0.44	0.38	0.39	0.30	0.25	0.18
	M			0.80	0.68	0.67	0.58	0.43	0.37
	H			0.02	-0.18	-0.20	0.10	-0.51	-0.48
				ml	--	--	--	--	--
Mother: Some college	L			0.68	0.59	0.61	0.55	0.45	0.35
	M			0.58	0.49	0.49	0.38	0.28	0.13
	H			0.46	0.28	0.28	0.54	0.07	-0.13
				--	--	--	--	--	--
Mother: BA	L			1.45	1.33	1.35	1.26	1.11	0.91
	M			1.17	0.93	0.92	0.75	0.57	0.42
	H			0.49	0.20	0.19	0.55	-0.03	-0.24
				--	--	--	--	--	--
Mother: Grad	L			1.09	1.00	1.01	0.93	0.80	0.68
	M			0.82	0.58	0.59	0.57	0.53	0.42
	H			1.11	0.77	0.75	1.02	0.44	0.07
				--	--	--	--	--	--
Father: HS	L			0.24	0.17	0.17	0.13	0.06	0.01
	M			0.11	0.04	0.03	-0.06	-0.15	-0.14
	H			0.92	0.80	0.80	0.85	0.50	0.45
				--	--	--	hm	--	--
Father: Some college	L			0.81	0.72	0.72	0.65	0.46	0.34
	M			0.50	0.36	0.35	0.20	0.13	0.08
	H			0.97	0.78	0.77	0.63	0.35	0.33
				--	--	--	ml	--	--

Father: BA	L	1.58	1.38	1.38	1.32	0.90	0.78
	M	0.90	0.72	0.71	0.57	0.44	0.30
	H	1.78	1.38	1.37	1.24	0.68	0.66
Father: Grad	L	1.08	0.87	0.87	0.80	0.59	0.52
	M	1.33	0.98	0.97	0.79	0.66	0.46
	H	0.82	0.43	0.43	0.31	0.18	0.19
Avg. schooling, aunts/uncles	L	0.10	0.09	0.09	0.07	0.06	0.06
	M	0.10	0.07	0.07	0.06	0.06	0.05
	H	0.09	0.08	0.08	0.07	0.06	0.07
<i>Parents' economic attainment</i>		--	--	--	--	--	--
Log avg. family income	L		0.30	0.27	0.12	0.14	0.12
	M		0.41	0.40	0.20	0.08	0.03
	H		0.54	0.55	0.56	0.69	0.52
Avg. net worth (\$10,000s)	L		--	--	--	HL, HM	hm
	M		0.04	0.04	0.04	0.03	0.03
	H		0.02	0.02	0.02	0.01	0.01
			hl, ML	ml	ml	--	hl, ml
<i>Children's family upbringing</i>							
Grandparent coresidence	L			-0.33	-0.36	-0.35	-0.31
	M			-0.12	-0.10	-0.11	-0.13
	H			-0.11	-0.11	-0.15	-0.08
Mother's age at birth	L			--	--	--	--
	M				-0.03	-0.04	-0.03
	H				-0.01	-0.01	-0.01
Sibship size	L				-0.10	-0.10	-0.04
	M				hm	--	--
	H				-0.15	-0.07	-0.06
2-parent biological w/ disruption	L				-0.07	-0.04	-0.03
	M				0.00	0.11	0.07
	H				--	--	--
2-parent biological never	L				-0.38	-0.28	-0.25
	M				-0.56	-0.43	-0.47
	H				-0.25	-0.10	-0.10
2-parent biological never	L				--	--	--
	M				-0.33	-0.25	-0.17
					-0.39	-0.42	-0.47

	H		-0.17	0.13	0.24
			--	--	hm
Cognitive stimulation (HOME)	L		0.02	0.00	0.00
	M		0.03	0.01	0.01
	H		0.07	0.06	0.04
			HL, HM	HL, HM	HL, HM
Emotional support (HOME)	L		0.01	0.00	0.00
	M		0.01	0.00	0.00
	H		-0.01	-0.01	-0.01
			--	--	--
<i>Children's skills and attributes</i>					
Behavior problems	L			-0.17	-0.12
	M			-0.24	-0.20
	H			0.03	0.09
				--	hm
Intellectual skills	L			0.53	0.39
	M			0.56	0.42
	H			0.39	0.16
				--	--
Self-perceived scholastic ability	L			0.38	0.25
	M			0.41	0.31
	H			0.61	0.53
				--	hl
Delinquency	L			-0.20	-0.14
	M			-0.28	-0.22
	H			-0.60	-0.62
				--	hl
Drug use	L			-0.14	-0.11
	M			-0.23	-0.21
	H			-0.18	-0.08
				--	--
<i>Educational goals</i>					
Children's aspirations	L				0.11
	M				0.16
	H				0.10
					--
Children's expectations	L				0.17
	M				0.05
	H				0.33

Parents' expectations	L										HM, ML
	M										0.04
	H										0.09
											0.12
											--
Observations		4201	4201	4201	4201	4201	4201	4201	4201	4201	4201

Group-specific coefficients shown. The significance of group differences in coefficients is indicated below each set (H=high, M=middle, L=low). For example, HM indicates a significant difference between the high and middle groups ($p < .05$); lower-case (hm) indicates marginal significance ($p < .10$).

Table S5. Sequential Decomposition: Highest Grade Completed, Restricted Sample

	High vs. Mid			Mid vs. Low			High vs. Low		
	Comp.	SE	%	Comp.	SE	%	Comp.	SE	%
Raw gap	1.50*	(0.21)	--	0.69*	(0.09)	--	2.19*	(0.21)	--
Antecedents/controls	0.23*	(0.10)	16.1	0.10†	(0.05)	10.4	0.33*	(0.12)	13.9
<u>Parent Traits (indirect)</u>									
Family upbringing	0.31*	(0.13)	21.5	0.26*	(0.04)	27.8	0.57*	(0.14)	23.9
Skills	0.56*	(0.17)	38.4	0.28*	(0.06)	30.5	0.84*	(0.18)	35.3
Educ. Orientations	0.21*	(0.11)	14.8	0.03†	(0.02)	3.1	0.24*	(0.11)	10.2
Education	0.05	(0.10)	3.7	0.13*	(0.04)	13.6	0.18†	(0.11)	7.6
Economic attainment	-0.04	(0.06)	-2.9	0.08*	(0.03)	8.4	0.03	(0.06)	1.5
<u>Child Traits (direct)</u>									
GP coresidence	-0.01	(0.02)	-0.4	0.01	(0.01)	0.7	0.00	(0.02)	0.1
Family upbringing	0.17	(0.12)	11.4	-0.02	(0.02)	-2.3	0.14	(0.12)	6.1
Skills	-0.04	(0.11)	-2.8	-0.04	(0.03)	-4.2	-0.08	(0.11)	-3.4
Educ. Orientations	0.05	(0.10)	3.5	0.03	(0.02)	3.3	0.08	(0.10)	3.4
Unexplained	0.00	(0.21)	0.0	-0.15†	(0.09)	-16.6	-0.15	(0.22)	-6.5

N=3,753; results based on 30 imputed data sets. Components are the reduction in the outcome gap after controlling the given set of covariates in a fully interacted OLS regression; robust standard errors in parentheses; percentage of raw gap explained shown next to standard errors.

Table S6. Sequential Decomposition: HS Diploma

	High vs. Mid			Mid vs. Low			High vs. Low		
	Comp.	SE	%	Comp.	SE	%	Comp.	SE	%
Raw gap	0.11*	(0.02)	--	0.11*	(0.02)	--	0.22*	(0.03)	--
Antecedents/controls	0.01	(0.01)	5.6	0.01	(0.01)	10.7	0.02	(0.01)	8.2
<u>Parent Traits (indirect)</u>									
Family upbringing	0.03*	(0.01)	28.3	0.04*	(0.01)	36.2	0.07*	(0.02)	32.3
Skills	0.02	(0.01)	19.1	0.04*	(0.01)	34.2	0.06*	(0.02)	26.7
Educ. Orientations	-0.03	(0.02)	-24.4	0.00	(0.00)	2.1	-0.02	(0.02)	-11.0
Education	0.02	(0.02)	21.7	0.00	(0.01)	4.4	0.03†	(0.02)	12.9
Economic attainment	0.01	(0.02)	7.3	0.00	(0.01)	2.0	0.01	(0.02)	4.6
<u>Child Traits (direct)</u>									
GP coresidence	0.00	(0.00)	-0.7	0.00	(0.00)	0.9	0.00	(0.00)	0.1
Family upbringing	-0.01	(0.03)	-11.0	0.00	(0.00)	-4.2	-0.02	(0.03)	-7.6
Skills	-0.01	(0.02)	-8.6	-0.01	(0.01)	-6.9	-0.02	(0.02)	-7.7
Educ. Orientations	-0.01	(0.02)	-8.3	0.01	(0.01)	6.4	0.00	(0.02)	-0.9
Unexplained	0.08*	(0.04)	70.9	0.02	(0.02)	14.4	0.09*	(0.04)	42.3

N=3,753; results based on 30 imputed data sets. Components are the reduction in the outcome gap (in percentage points) after controlling the given set of covariates (fixed to the middle group's means) in a fully interacted logistic regression; robust standard errors in parentheses; percentage of raw gap explained shown next to standard errors.

Table S7. Sequential Decomposition: College Attendance

	High vs. Mid			Mid vs. Low			High vs. Low		
	Comp.	SE	%	Comp.	SE	%	Comp.	SE	%
Raw gap	0.21*	(0.03)	--	0.11*	(0.02)	--	0.32*	(0.03)	--
Antecedents/controls	0.01	(0.01)	3.4	-0.01	(0.01)	-6.0	0.00	(0.02)	0.2
<u>Parent Traits (indirect)</u>									
Family upbringing	0.03†	(0.02)	15.5	0.04*	(0.01)	39.6	0.08*	(0.02)	23.8
Skills	0.05*	(0.02)	22.7	0.06*	(0.01)	52.0	0.10*	(0.02)	32.7
Educ. Orientations	0.01	(0.02)	7.1	0.00	(0.00)	4.2	0.02	(0.02)	6.1
Education	0.00	(0.02)	-1.4	0.02*	(0.01)	19.3	0.02	(0.03)	5.7
Economic attainment	-0.02	(0.02)	-10.4	0.02†	(0.01)	18.1	0.00	(0.02)	-0.7
<u>Child Traits (direct)</u>									
GP coresidence	0.00	(0.00)	0.0	0.00	(0.00)	0.3	0.00	(0.00)	0.1
Family upbringing	0.01	(0.03)	7.0	0.00	(0.00)	-3.1	0.01	(0.03)	3.5
Skills	-0.04	(0.04)	-18.1	-0.01	(0.01)	-7.3	-0.05	(0.04)	-14.4
Educ. Orientations	-0.04	(0.05)	-20.8	0.01	(0.01)	9.0	-0.03	(0.05)	-10.6
Unexplained	0.20*	(0.06)	94.9	-0.03	(0.03)	-26.1	0.17*	(0.06)	53.5

N=3,753; results based on 30 imputed data sets. Components are the reduction in the outcome gap (in percentage points) after controlling the given set of covariates (fixed to the middle group's means) in a fully interacted logistic regression; robust standard errors in parentheses; percentage of raw gap explained shown next to standard errors.

Table S8. Sequential Decomposition: Bachelor's Degree

	High vs. Mid			Mid vs. Low			High vs. Low		
	Comp.	SE	%	Comp.	SE	%	Comp.	SE	%
Raw gap	0.24*	(0.04)	--	0.09*	(0.01)	--	0.32*	(0.04)	--
Antecedents/controls	0.04*	(0.02)	17.5	0.01	(0.01)	6.5	0.05*	(0.02)	14.5
<u>Parent Traits (indirect)</u>									
Family upbringing	0.04	(0.03)	15.1	0.03*	(0.01)	32.6	0.06*	(0.03)	19.9
Skills	0.09*	(0.03)	36.9	0.04*	(0.01)	41.1	0.12*	(0.03)	38.0
Educ. Orientations	0.04†	(0.02)	17.3	0.01*	(0.00)	7.9	0.05*	(0.02)	14.7
Education	0.02	(0.02)	7.7	0.02*	(0.01)	21.8	0.04	(0.02)	11.5
Economic attainment	0.00	(0.01)	0.4	0.01*	(0.00)	11.4	0.01	(0.01)	3.4
<u>Child Traits (direct)</u>									
GP coresidence	0.00	(0.00)	-0.5	0.00	(0.00)	0.8	0.00	(0.00)	-0.2
Family upbringing	0.03	(0.03)	11.6	0.00	(0.00)	-3.1	0.02	(0.03)	7.6
Skills	0.00	(0.03)	1.6	0.00	(0.01)	1.2	0.00	(0.03)	1.5
Educ. Orientations	0.06	(0.04)	24.9	0.00	(0.01)	-3.9	0.06	(0.04)	17.0
Unexplained	-0.08†	(0.05)	-32.4	-0.01	(0.02)	-16.3	-0.09†	(0.05)	-28.0

N=3,753; results based on 30 imputed data sets. Components are the reduction in the outcome gap (in percentage points) after controlling the given set of covariates (fixed to the middle group's means) in a fully interacted logistic regression; robust standard errors in parentheses; percentage of raw gap explained shown next to standard errors.

Table S9. Sequential Decomposition: Highest Grade Completed, Attrition Weights

	High vs. Mid			Mid vs. Low			High vs. Low		
	Comp.	SE	%	Comp.	SE	%	Comp.	SE	%
Raw gap	1.45*	(0.22)	--	0.92*	(0.13)	--	2.37*	(0.22)	--
Antecedents/controls	0.35*	(0.13)	24.3	0.11†	(0.06)	11.6	0.46*	(0.14)	19.4
<u>Parent Traits (indirect)</u>									
Family upbringing	0.19	(0.15)	13.2	0.29*	(0.06)	31.4	0.48*	(0.16)	20.3
Skills	0.41*	(0.15)	28.4	0.36*	(0.07)	38.9	0.77*	(0.16)	32.5
Educ. Orientations	0.35*	(0.15)	24.4	0.03	(0.02)	3.3	0.38*	(0.14)	16.2
Education	0.03	(0.11)	2.0	0.17*	(0.05)	18.1	0.20†	(0.12)	8.3
Economic attainment	0.01	(0.06)	0.5	0.06†	(0.03)	6.1	0.06	(0.06)	2.7
<u>Child Traits (direct)</u>									
GP coresidence	0.00	(0.01)	-0.3	0.00	(0.01)	-0.1	-0.01	(0.01)	-0.2
Family upbringing	0.02	(0.14)	1.7	0.06	(0.05)	6.4	0.08	(0.14)	3.5
Skills	-0.07	(0.13)	-4.6	-0.04	(0.04)	-4.2	-0.10	(0.13)	-4.4
Educ. Orientations	0.09	(0.10)	6.5	0.01	(0.03)	0.6	0.10	(0.11)	4.2
Unexplained	0.06	(0.20)	3.9	-0.11	(0.09)	-12.0	-0.05	(0.21)	-2.2

N=4,201; results based on 30 imputed data sets. Components are the reduction in the outcome gap after controlling the given set of covariates in a fully interacted OLS regression; robust standard errors in parentheses; percentage of raw gap explained shown next to standard errors. Analyses weighted by the inverse probability of retention in the sample.

Table S10. Sequential Decomposition: Highest Grade Completed, Alternate Ordering

	High vs. Mid			Mid vs. Low			High vs. Low		
	Comp.	SE	%	Comp.	SE	%	Comp.	SE	%
Raw gap	1.41*	(0.19)	--	0.72*	(0.09)	--	2.13*	(0.19)	--
Antecedents/controls	0.22*	(0.09)	15.3	0.08	(0.05)	11.1	0.30*	(0.10)	13.9
<u>Parent Traits (indirect)</u>									
Skills	0.62*	(0.14)	44.1	0.44*	(0.07)	61.7	1.07*	(0.15)	50.0
Family upbringing	0.13	(0.09)	9.2	0.13*	(0.03)	18.3	0.26*	(0.10)	12.2
Educ. Orientations	0.27*	(0.11)	19.2	0.03	(0.02)	3.7	0.30*	(0.11)	14.0
Education	0.07	(0.08)	5.2	0.11*	(0.04)	15.8	0.19*	(0.09)	8.7
Economic attainment	-0.02	(0.06)	-1.3	0.08*	(0.03)	10.7	0.06	(0.06)	2.7
<u>Child Traits (direct)</u>									
Skills	0.00	(0.11)	0.2	-0.06	(0.04)	-8.3	-0.06	(0.11)	-2.7
GP coresidence	0.00	(0.01)	0.0	0.01	(0.01)	0.9	0.01	(0.01)	0.3
Family upbringing	0.09	(0.08)	6.4	-0.01	(0.01)	-1.2	0.08	(0.08)	3.8
Educ. Orientations	0.08	(0.09)	5.4	0.02	(0.02)	2.8	0.10	(0.09)	4.5
Unexplained	-0.05	(0.18)	-3.6	-0.11	(0.08)	-15.4	-0.16	(0.19)	-7.5

N=4,201; results based on 30 imputed data sets. Components are the reduction in the outcome gap after controlling the given set of covariates in a fully interacted OLS regression; robust standard errors in parentheses; percentage of raw gap explained shown next to standard errors.

Decomposition performed with skills included prior to family upbringing.

Table S11. Sequential Decomposition: Highest Grade Completed, Alternate Grandparent Groups

	High vs. Mid			Mid vs. Low			High vs. Low		
	Comp.	SE	%	Comp.	SE	%	Comp.	SE	%
Raw gap	0.77*	(0.14)	--	0.68*	(0.09)	--	1.45*	(0.14)	--
Antecedents/controls	0.10*	(0.05)	12.5	0.07	(0.05)	10.8	0.17*	(0.07)	11.7
<u>Parent Traits (indirect)</u>									
Family upbringing	0.28*	(0.06)	35.9	0.24*	(0.04)	34.6	0.51*	(0.07)	35.3
Skills	0.33*	(0.08)	43.1	0.27*	(0.05)	39.4	0.60*	(0.09)	41.4
Educ. Orientations	0.25*	(0.07)	32.8	0.01	(0.02)	1.8	0.27*	(0.07)	18.3
Education	0.01	(0.06)	1.2	0.11*	(0.04)	15.7	0.12†	(0.06)	7.9
Economic attainment	-0.02	(0.03)	-2.2	0.07*	(0.03)	10.3	0.05	(0.03)	3.7
<u>Child Traits (direct)</u>									
GP coresidence	0.00	(0.01)	0.5	0.01	(0.01)	1.3	0.01	(0.01)	0.9
Family upbringing	0.00	(0.04)	-0.5	-0.01	(0.02)	-0.9	-0.01	(0.04)	-0.7
Skills	0.01	(0.06)	1.4	-0.04	(0.03)	-5.8	-0.03	(0.06)	-2.0
Educ. Orientations	0.05	(0.04)	6.0	0.01	(0.02)	1.9	0.06	(0.04)	4.1
Unexplained	-0.24*	(0.11)	-30.6	-0.06	(0.08)	-9.1	-0.30*	(0.12)	-20.5

N=4,201; results based on 30 imputed data sets. Components are the reduction in the outcome gap after controlling the given set of covariates in a fully interacted OLS regression; robust standard errors in parentheses; percentage of raw gap explained shown next to standard errors. Groups based on most educated grandparent: Low = less than high school (2,012); Mid = high school (1,568); High = some college or more (621).

Table S12. Sequential Decomposition: Highest Grade Completed, Alternate Grandmother Groups

	High vs. Mid			Mid vs. Low			High vs. Low		
	Comp.	SE	%	Comp.	SE	%	Comp.	SE	%
Raw gap	0.85*	(0.19)	--	0.67*	(0.10)	--	1.52*	(0.18)	--
Antecedents/controls	0.05	(0.05)	6.0	0.12*	(0.05)	17.6	0.17*	(0.07)	11.1
<u>Parent Traits (indirect)</u>									
Family upbringing	0.23*	(0.08)	27.1	0.22*	(0.04)	32.9	0.45*	(0.09)	29.6
Skills	0.39*	(0.11)	46.1	0.32*	(0.05)	47.7	0.71*	(0.12)	46.8
Educ. Orientations	0.44*	(0.13)	51.8	0.01	(0.02)	1.8	0.45*	(0.13)	29.8
Education	0.09	(0.10)	10.2	0.10*	(0.04)	14.9	0.19†	(0.10)	12.3
Economic attainment	0.01	(0.03)	0.8	0.02	(0.02)	3.1	0.03	(0.03)	1.8
<u>Child Traits (direct)</u>									
GP coresidence	0.00	(0.01)	0.5	0.01	(0.01)	1.1	0.01	(0.01)	0.8
Family upbringing	0.01	(0.05)	1.2	-0.02	(0.02)	-3.3	-0.01	(0.05)	-0.8
Skills	-0.06	(0.08)	-6.9	-0.04	(0.03)	-5.7	-0.10	(0.08)	-6.4
Educ. Orientations	0.05	(0.07)	6.1	0.02	(0.02)	3.0	0.07	(0.07)	4.7
Unexplained	-0.37*	(0.15)	-43.0	-0.09	(0.08)	-13.1	-0.45*	(0.16)	-29.8

N=4,079; results based on 30 imputed data sets. Components are the reduction in the outcome gap after controlling the given set of covariates in a fully interacted OLS regression; robust standard errors in parentheses; percentage of raw gap explained shown next to standard errors. Groups based on grandmother education: Low = less than high school (2,401); Mid = high school (1,331); High = some college or more (347).

Table S13. Summary of Sequential Decompositions for All Outcomes, Large Samples

	Highest Grade (OLS)			HS Diploma (Logit)			College Attendance (Logit)			Bachelor's Degree (Logit)		
	N=4,201			N=5,731			N=6,299			N=5,125		
	H-M	M-L	H-L	H-M	M-L	H-L	H-M	M-L	H-L	H-M	M-L	H-L
Raw Gap ^a	1.41	0.72	2.13	0.11	0.13	0.24	0.21	0.13	0.34	0.22	0.10	0.32
<i>Antecedents/controls</i>	15.3	11.1	13.9	11.5	7.3	9.3	5.3	-9.9	-0.5	23.5	3.4	17.2
<i>Parent attributes (indirect)</i>	76.3	110.1	87.7	58.1	81.7	70.5	50.5	105.3	71.5	58.4	102.2	72.2
Family upbringing	16.5	35.3	22.8	29.1	25.9	27.4	14.9	32.7	21.8	10.5	30.7	16.9
Skills	36.9	44.7	39.5	24.6	32.7	28.9	19.2	48.3	30.3	26.3	37.6	29.8
Educ. orientations	19.2	3.7	14.0	-13.7	0.3	-6.3	12.4	1.2	8.1	19.9	7.4	16.0
Education	5.2	15.8	8.7	14.6	5.7	9.9	6.2	13.9	9.1	0.9	18.9	6.6
Economic attainment	-1.3	10.7	2.7	3.5	17.1	10.7	-2.1	9.1	2.2	0.8	7.6	2.9
<i>Child attributes (direct)</i>	12.0	-5.9	6.0	-2.6	-5.5	-4.1	-25.8	-3.3	-17.2	15.3	2.1	11.1
GP coresidence	-0.2	0.9	0.2	-0.3	0.1	-0.1	-2.1	0.7	-1.1	0.6	0.2	0.5
Family upbringing	9.5	-2.6	5.5	-2.1	-5.2	-3.7	-0.8	-3.9	-1.9	0.3	-2.5	-0.6
Skills	-2.8	-7.0	-4.2	3.3	-3.8	-0.4	-10.0	-3.4	-7.5	1.7	6.7	3.3
Educ. orientations	5.4	2.8	4.5	-3.5	3.4	0.1	-13.0	3.3	-6.8	12.7	-2.3	8.0
<i>Unexplained</i>	-3.6	-15.4	-7.5	33.0	16.5	24.3	70.1	8.0	46.3	2.8	-7.6	-0.5

^aRaw gaps presented on the metric of the outcome (grade levels or predicted probabilities of HS diploma, college attendance, and bachelor's degree attainment). Components are the percentage of the raw gap explained by each construct, based on regressions fully interacted by grandparent education with the middle group as reference (covariates are set at middle group means). HS Diploma data collected at age 19 or later; college attendance data collected at age 20 or later; bachelor's degree data collected at age 23 or later.

Table S14. Decompositions with Different Reference Groups, Large Samples

	Highest Grade (OLS) N=4,201			HS Diploma (Logit) N=5,731			College Attendance (Logit) N=6,299			Bachelor's Degree (Logit) N=5,125		
	H-M	M-L	H-L	H-M	M-L	H-L	H-M	M-L	H-L	H-M	M-L	H-L
	No interactions											
Antecedents	6.8	20.1	11.3	7.7	19.0	13.7	3.3	3.7	3.4	10.6	15.7	12.2
Parent attributes	71.9	97.5	80.5	70.4	72.3	71.4	54.1	95.8	70.1	84.3	89.6	86.0
Child attributes	3.4	-3.5	1.1	4.4	1.4	2.8	2.3	4.2	3.0	-0.4	-4.5	-1.7
Unexplained	17.9	-14.1	7.1	2.9	0.3	1.5	1.2	-0.1	0.7	-0.3	-0.7	-0.4
Interactions: Middle group means												
Antecedents	15.3	11.1	13.9	11.5	7.3	9.3	5.3	-9.9	-0.5	23.5	3.4	17.2
Parent attributes	76.3	110.1	87.7	58.1	81.7	70.5	50.5	105.3	71.5	58.4	102.2	72.2
Child attributes	12.0	-5.9	6.0	-2.6	-5.5	-4.1	-25.8	-3.3	-17.2	15.3	2.1	11.1
Unexplained	-3.6	-15.4	-7.5	33.0	16.5	24.3	70.1	8.0	46.3	2.8	-7.6	-0.5
Interactions: Low group means												
Antecedents	46.7	20.6	37.9	-3.9	21.3	9.4	18.6	14.4	17.0	55.5	21.6	44.9
Parent attributes	81.2	96.7	86.4	8.6	89.8	51.5	44.6	109.4	69.4	27.1	68.2	40.0
Child attributes	23.1	-10.4	11.8	-0.4	-18.1	-9.8	-30.7	-5.2	-20.9	15.9	-4.2	9.5
Unexplained	-51.0	-6.8	-36.1	95.7	7.1	48.9	67.6	-18.6	34.5	1.5	14.4	5.6
Interactions: High group means												
Antecedents	6.0	9.2	7.1	12.6	2.9	7.5	1.5	-16.0	-5.2	9.1	-8.3	3.6
Parent attributes	65.0	152.1	94.3	78.5	97.0	88.3	68.4	111.8	85.0	68.2	213.2	113.8
Child attributes	7.1	-31.4	-5.8	-0.3	-8.0	-4.4	-5.1	-12.0	-7.7	9.5	-16.5	1.3
Unexplained	21.9	-29.9	4.5	9.2	8.1	8.6	35.2	16.1	27.9	13.3	-88.4	-18.7

Each cell contains % attributed to each component. For analyses with interactions, covariates are held at the means of the reference group.

Figure S1. Highest Grade Completed, High-Low Decomposition Robustness Checks. Comparison of original analysis, one weighted to adjust for attrition, one with alternate grandparent education groups (v2; <HS, HS, College+), another with grandmother education groups (v3; <HS, HS, College+), and one with an alternate ordering (v2; skills before family upbringing). Based on analyses reported in Table 2 (manuscript) and Tables S9-S12.

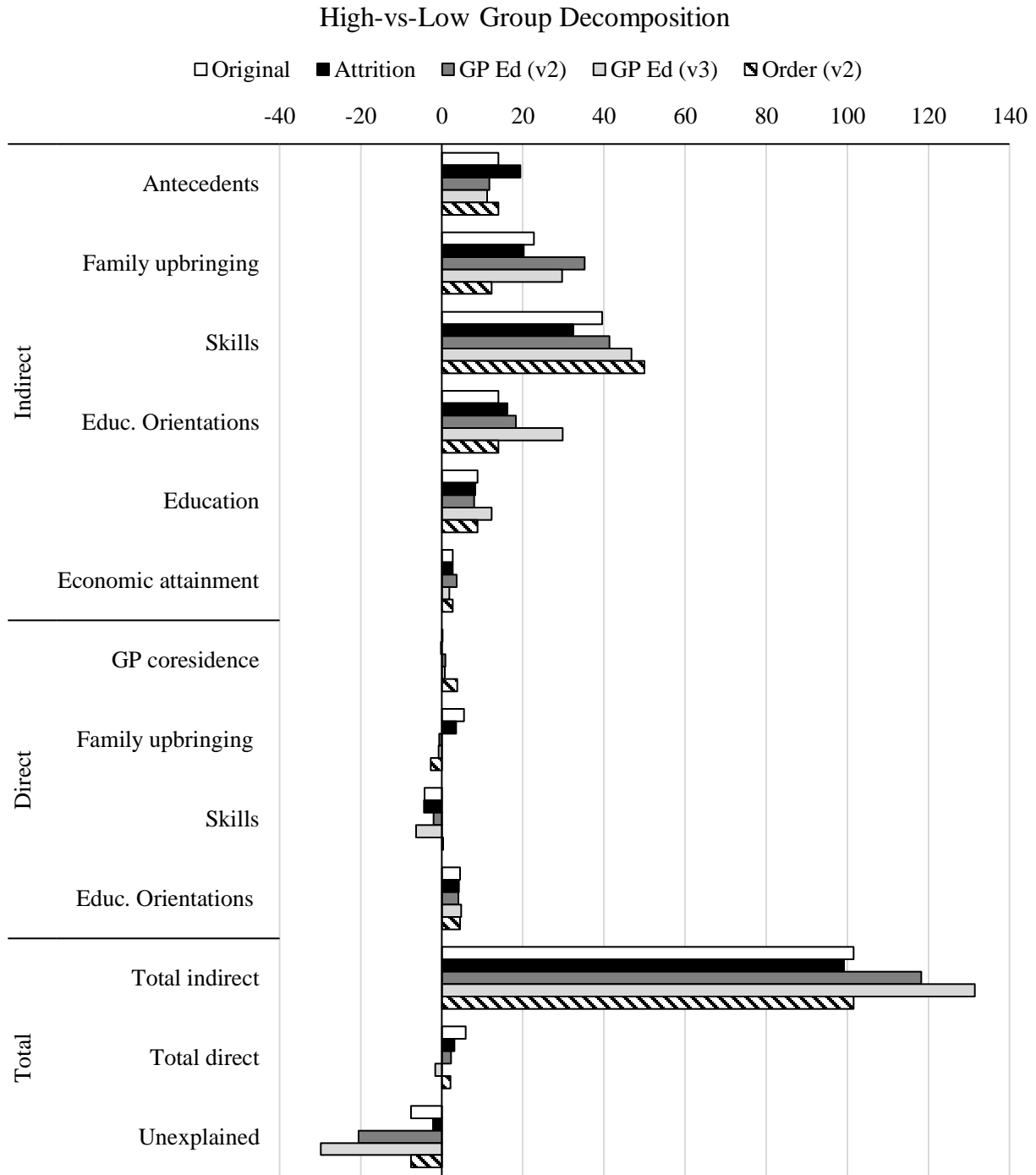


Figure S2. Sequential Decompositions, All Outcomes, Larger Samples. Each line shows the percentage of the raw gap remaining at each stage in the sequence. Estimates for high school diploma, college attendance, and bachelor's degree attainment are based on predicted probabilities after logistic regressions. All covariates are interacted with grandparent education; estimates are based on predictions at middle-group covariate means. Estimates and sample sizes reported in Table S13.

