

Appendix Tables & Figures

<Appendix Table 1> Percentage of cases with imputed personal income among 25-59 years old

	25-29	30-34	35-39	40-44	45-49	50-54	55-59
I. All imputed cases ^a							
2009	57.7	19.1	8.1	2.3	1.3	1.2	2.7
2010	58.5	21.3	8.1	3.6	1.4	1.2	2.4
2011	64.0	23.5	8.0	3.9	1.6	1.5	1.4
2012	64.6	24.2	8.0	4.0	1.4	1.3	1.4
2013	68.8	23.4	7.7	4.8	1.6	1.0	1.6
2014	62.3	24.7	8.7	4.6	1.4	1.3	1.5
2015	65.8	25.6	10.4	5.4	1.8	1.9	1.6
2016	65.8	27.2	11.3	5.4	2.3	1.8	1.8
2017	67.6	31.4	14.7	5.4	2.7	1.9	2.0
2018	66.5	33.2	12.1	5.6	2.7	1.2	0.8
2019	67.9	32.2	15.3	8.1	3.8	1.7	0.2
II. Cases imputed based on regression analysis ^b							
2009	12.3	3.9	1.5	0.4	0.2	0.1	0.2
2010	10.5	3.7	1.4	0.7	0.3	0.2	0.2
2011	11.3	3.2	1.1	0.7	0.2	0.1	0.1
2012	9.9	3.1	1.3	0.8	0.3	0.1	0.1
2013	11.2	3.8	1.0	0.5	0.4	0.1	0.0
2014	11.2	3.8	1.4	0.4	0.1	0.1	0.1
2015	11.0	3.0	1.6	0.7	0.1	0.3	0.1
2016	10.4	3.0	1.5	0.6	0.2	0.3	0.3
2017	9.5	3.7	2.4	0.5	0.2	0.6	0.0
2018	11.3	4.2	1.6	0.5	0.2	0.3	0.0
2019	9.7	3.6	2.3	0.7	0.3	0.5	0.0
Sample size	8,384	12,525	16,801	18,315	17,137	15,034	12,571

Notes: HIES-D includes the personal income of all individuals in all households. Calculated out of the cases with positive income. a. All imputed cases indicate the percentage of all other family members who are working than household head and spouse. b. Cases imputed with regression analysis indicate the percentage of family members whose earnings are imputed based on the regression models. Only when two or more other family members except household and spouse are working, we imputed their earnings based on regression models.

<Appendix Table 2> Decomposition of % changes in the variance of log individual income relative to 2009

		Decomposition: %Δ = (a) + (b) + (c) + (d) + (e) + (f)										
		(a) Age		(b) Sex		(c) Education		(d) Family type		(e) Relations to HH		(f) Residual
%Δ		Dist. (a1)	Coef. (a2)	Dist. (b1)	Coef. (b2)	Dist. (c1)	Coef. (c2)	Dist. (d1)	Coef. (c2)	Dist. (e1)	Coef. (e2)	
HIES-A: Age 20-79												
1999	-15.150 ^{***}	-3.120 ^{***}	-0.283	-0.380	-3.547 ^{**}	-0.864	0.838	0.172	-0.011	0.237	4.612 ^{**}	-12.804 ^{***}
	(3.583)	(0.584)	(0.222)	(0.331)	(1.177)	(0.550)	(0.780)	(0.118)	(0.103)	(0.822)	(1.574)	(2.112)
2000	12.434 ^{**}	-3.221 ^{***}	-0.050	2.230 ^{***}	-1.702	-1.566 [*]	-1.810 ^{**}	-0.034	-0.012	8.615 ^{***}	16.942 ^{***}	-6.958 ^{**}
	(4.441)	(0.627)	(0.242)	(0.402)	(1.683)	(0.647)	(0.690)	(0.133)	(0.115)	(0.903)	(2.589)	(2.304)
2001	11.468 ^{**}	-3.534 ^{***}	-0.195	1.511 ^{***}	-5.208 ^{**}	-1.519 [*]	-0.955	0.000	-0.112	8.373 ^{***}	19.648 ^{***}	-6.541 ^{**}
	(4.274)	(0.650)	(0.188)	(0.348)	(1.608)	(0.599)	(0.719)	(0.138)	(0.080)	(0.860)	(2.601)	(2.364)
2002	3.379	-3.641 ^{***}	-0.151	1.512 ^{***}	-2.001	-2.201 ^{***}	-1.881 ^{**}	0.013	-0.079	6.946 ^{***}	13.792 ^{***}	-8.931 ^{***}
	(4.215)	(0.624)	(0.185)	(0.346)	(1.522)	(0.612)	(0.621)	(0.128)	(0.085)	(0.844)	(2.353)	(2.218)
2003	39.082 ^{***}	-2.689 ^{***}	-0.029	3.379 ^{***}	-2.547	-0.960	-1.408 [*]	-0.176	0.208	12.424 ^{***}	23.935 ^{***}	6.945 ^{**}
	(5.110)	(0.605)	(0.254)	(0.497)	(1.953)	(0.563)	(0.690)	(0.160)	(0.179)	(0.917)	(3.079)	(2.605)
2004	27.039 ^{***}	-2.450 ^{***}	0.165	2.284 ^{***}	-1.895	-1.507 ^{**}	-1.616 [*]	-0.110	0.033	9.215 ^{***}	16.849 ^{***}	6.071 [*]
	(4.574)	(0.586)	(0.303)	(0.384)	(1.723)	(0.575)	(0.660)	(0.135)	(0.135)	(0.832)	(2.544)	(2.625)
2005	21.456 ^{***}	-2.827 ^{***}	-0.302	1.618 ^{***}	-3.353 [*]	-0.878	-0.144	-0.111	0.043	7.402 ^{***}	14.344 ^{***}	5.663 [*]
	(4.731)	(0.590)	(0.255)	(0.340)	(1.652)	(0.551)	(0.751)	(0.122)	(0.143)	(0.851)	(2.476)	(2.721)
2006	9.473 [*]	-2.116 ^{***}	0.097	0.711 [*]	-2.816	-0.583	0.208	0.050	-0.099	3.617 ^{***}	7.792 ^{***}	2.612
	(4.622)	(0.555)	(0.342)	(0.306)	(1.541)	(0.570)	(0.798)	(0.082)	(0.147)	(0.853)	(2.149)	(2.679)
2007	0.332	-1.608 ^{**}	-0.242	0.003	-1.878	-0.630	0.457	0.037	0.227	0.844	3.445 [*]	-0.324
	(4.319)	(0.583)	(0.384)	(0.326)	(1.435)	(0.562)	(0.827)	(0.074)	(0.200)	(0.844)	(1.716)	(2.760)
2008	-0.407	-1.304 [*]	-0.208	-0.002	-0.511	-0.931	-0.221	0.025	0.057	0.417	1.942	0.328
	(4.105)	(0.595)	(0.434)	(0.340)	(1.396)	(0.601)	(0.825)	(0.078)	(0.196)	(0.846)	(1.714)	(2.767)
2010	3.526	-0.235	0.602	0.497	0.609	-0.375	-1.131	-0.013	-0.175	1.156	1.296	1.293
	(4.353)	(0.596)	(0.563)	(0.321)	(1.523)	(0.556)	(0.813)	(0.077)	(0.202)	(0.872)	(1.803)	(2.754)
2011	3.876	0.757	0.850	0.288	-0.635	0.649	-0.463	0.109	-0.083	0.856	2.110	-0.562
	(4.515)	(0.605)	(0.656)	(0.323)	(1.510)	(0.554)	(0.946)	(0.107)	(0.329)	(0.850)	(1.753)	(2.812)
2012	-1.393	2.141 ^{**}	1.025	-0.144	0.761	-0.380	-1.227	-0.006	0.278	-0.625	-0.759	-2.458
	(4.496)	(0.724)	(0.779)	(0.351)	(1.415)	(0.583)	(0.848)	(0.153)	(0.446)	(0.894)	(1.597)	(2.861)

2013	-8.190 (4.234)	2.557*** (0.635)	0.701 (0.787)	-0.520 (0.359)	-0.778 (1.355)	-1.355* (0.589)	-2.103** (0.804)	0.075 (0.136)	0.176 (0.369)	-1.697 (0.900)	-0.594 (1.522)	-4.650 (2.838)
2014	-16.118*** (3.822)	2.375*** (0.663)	0.416 (0.766)	-0.871* (0.370)	-0.013 (1.313)	-1.714** (0.587)	-2.102** (0.711)	0.151 (0.124)	0.235 (0.359)	-3.625*** (0.927)	-2.939* (1.392)	-8.031** (2.500)
2015	-11.034** (4.279)	2.696*** (0.665)	0.673 (0.784)	-0.691 (0.374)	-1.068 (1.470)	-2.112*** (0.633)	-2.874*** (0.681)	0.174 (0.145)	0.575 (0.428)	-2.613** (0.932)	-0.711 (1.644)	-5.082 (2.882)
2016	-14.041*** (4.002)	4.483*** (0.769)	1.144 (0.915)	-0.944* (0.384)	-0.573 (1.373)	-0.988 (0.574)	-3.013*** (0.758)	0.117 (0.151)	0.202 (0.394)	-3.792*** (0.952)	-2.469 (1.421)	-8.207** (2.884)
2017	-37.795*** (3.580)	5.293*** (1.064)	0.962 (1.239)	-2.474*** (0.547)	0.256 (1.197)	-1.453* (0.680)	-3.160*** (0.873)	0.157 (0.169)	0.201 (0.456)	-8.713*** (1.105)	-6.025*** (0.989)	-22.839*** (2.531)
2018	-44.603*** (2.717)	2.975*** (0.697)	-0.504 (0.744)	-2.880*** (0.551)	0.083 (0.970)	-2.061*** (0.622)	-2.223** (0.689)	0.183 (0.126)	0.070 (0.357)	-9.899*** (1.088)	-6.298*** (0.810)	-24.050*** (2.056)
2019	-43.348*** (2.799)	5.188*** (0.850)	0.443 (0.902)	-3.250*** (0.633)	0.052 (0.912)	-1.932** (0.632)	-1.950** (0.688)	0.208 (0.113)	-0.443 (0.301)	-10.751*** (1.044)	-6.353*** (0.736)	-24.562*** (1.982)

HIES-A: Age 25-59

1999	-12.081** (4.045)	0.120 (0.133)	0.246 (0.180)	-0.802 (0.414)	-4.131** (1.448)	0.750 (0.616)	0.134 (0.850)	0.074 (0.077)	0.003 (0.074)	-0.031 (0.836)	5.327** (1.858)	-13.770*** (2.362)
2000	17.932*** (5.020)	0.126 (0.153)	0.321 (0.198)	2.455*** (0.487)	-2.226 (2.029)	0.031 (0.684)	-2.402** (0.799)	-0.148 (0.128)	0.041 (0.119)	8.360*** (0.917)	18.653*** (2.975)	-7.279** (2.611)
2001	19.260*** (5.027)	0.031 (0.156)	0.255 (0.182)	1.744*** (0.431)	-6.637*** (1.980)	0.150 (0.656)	-1.579 (0.810)	-0.094 (0.119)	-0.087 (0.090)	8.563*** (0.931)	23.369*** (3.272)	-6.455* (2.726)
2002	10.019* (4.727)	0.021 (0.160)	0.173 (0.156)	1.899*** (0.425)	-1.889 (2.046)	-0.948 (0.688)	-2.533*** (0.660)	-0.048 (0.100)	-0.044 (0.065)	7.141*** (0.901)	15.452*** (2.810)	-9.204*** (2.552)
2003	45.392*** (5.832)	0.015 (0.159)	0.142 (0.136)	3.935*** (0.599)	-3.480 (2.337)	0.188 (0.637)	-1.635* (0.759)	-0.232 (0.159)	0.243 (0.174)	11.983*** (0.946)	26.330*** (3.452)	7.902** (3.045)
2004	32.000*** (5.565)	0.047 (0.146)	0.143 (0.161)	2.609*** (0.473)	-2.901 (2.145)	-0.663 (0.612)	-1.789* (0.699)	-0.166 (0.144)	0.083 (0.130)	8.908*** (0.898)	18.808*** (3.150)	6.919* (3.047)
2005	27.193*** (5.332)	0.018 (0.144)	0.109 (0.141)	1.929*** (0.409)	-3.650 (2.009)	0.046 (0.563)	-0.609 (0.749)	-0.147 (0.125)	0.010 (0.106)	7.380*** (0.830)	15.626*** (2.947)	6.481* (3.072)
2006	12.400* (5.090)	0.055 (0.133)	0.308 (0.242)	0.755* (0.380)	-3.102 (1.876)	0.291 (0.586)	-0.044 (0.814)	-0.016 (0.085)	-0.080 (0.084)	3.579*** (0.831)	7.951** (2.452)	2.703 (3.050)
2007	2.281 (5.042)	0.030 (0.129)	0.044 (0.178)	-0.180 (0.393)	-3.033 (1.699)	-0.079 (0.602)	0.263 (0.802)	-0.018 (0.084)	0.065 (0.130)	0.983 (0.882)	4.278* (2.151)	-0.070 (3.243)

2008	2.310 (5.033)	0.029 (0.131)	0.026 (0.186)	-0.191 (0.405)	-1.179 (1.738)	-0.428 (0.642)	-0.128 (0.823)	-0.006 (0.081)	0.006 (0.090)	0.425 (0.855)	2.375 (2.122)	1.382 (3.496)
2010	2.736 (4.818)	0.020 (0.123)	0.070 (0.195)	0.376 (0.390)	0.327 (1.912)	-0.704 (0.639)	-0.897 (0.766)	-0.015 (0.082)	-0.070 (0.085)	1.234 (0.866)	1.508 (2.138)	0.888 (3.069)
2011	1.114 (5.211)	-0.007 (0.152)	0.208 (0.292)	0.271 (0.395)	-0.400 (1.945)	0.223 (0.616)	-0.187 (0.825)	0.133 (0.088)	-0.002 (0.165)	0.752 (0.908)	1.775 (2.174)	-1.653 (3.361)
2012	-6.138 (4.812)	0.225 (0.120)	0.106 (0.274)	-0.273 (0.403)	0.341 (1.789)	-1.103 (0.639)	-0.511 (0.720)	0.067 (0.104)	0.063 (0.211)	-0.582 (0.903)	-0.592 (2.010)	-3.879 (3.155)
2013	-14.471** (4.678)	0.314* (0.132)	0.477 (0.340)	-0.758 (0.420)	-0.083 (1.639)	-2.525*** (0.662)	-1.634** (0.593)	0.105 (0.085)	0.020 (0.186)	-1.697 (0.923)	-1.448 (1.809)	-7.242* (3.143)
2014	-19.786*** (4.103)	0.405** (0.130)	0.553 (0.364)	-1.204** (0.442)	0.026 (1.671)	-2.606*** (0.707)	-1.211* (0.606)	0.175 (0.103)	0.238 (0.240)	-3.171*** (0.927)	-3.149 (1.742)	-9.843*** (2.735)
2015	-15.099** (5.137)	0.313** (0.116)	0.389 (0.310)	-0.928* (0.456)	-1.103 (2.035)	-3.220*** (0.790)	-1.564** (0.594)	0.207 (0.109)	0.483 (0.300)	-2.384* (0.990)	-0.996 (2.260)	-6.297 (3.567)
2016	-21.224*** (4.397)	0.158 (0.122)	0.273 (0.255)	-1.352** (0.493)	-0.044 (1.679)	-2.901*** (0.712)	-1.442* (0.609)	0.140 (0.087)	0.162 (0.188)	-3.596*** (0.960)	-3.320* (1.674)	-9.300** (3.296)
2017	-50.959*** (3.384)	0.014 (0.139)	0.018 (0.187)	-3.417*** (0.708)	0.444 (1.498)	-4.088*** (0.774)	-0.761 (0.640)	0.192 (0.106)	0.186 (0.221)	-8.678*** (1.145)	-6.565*** (1.308)	-28.304*** (2.807)
2018	-53.529*** (2.917)	0.019 (0.134)	-0.257* (0.130)	-3.898*** (0.715)	-0.483 (1.207)	-3.834*** (0.746)	-0.831 (0.512)	0.193 (0.100)	0.185 (0.187)	-9.678*** (1.177)	-6.432*** (1.013)	-28.512*** (2.445)
2019	-56.756*** (2.361)	0.137 (0.110)	-0.057 (0.165)	-4.221*** (0.736)	-0.449 (1.123)	-4.018*** (0.695)	-0.589 (0.478)	0.225* (0.114)	0.163 (0.191)	-10.722*** (1.181)	-6.430*** (0.896)	-30.796*** (1.986)

HIES-D: Age 20-79

2010	1.627 (3.192)	0.522 (0.889)	0.975 (0.850)	0.077 (0.202)	-0.360 (0.700)	-0.246 (0.359)	-0.821 (0.641)	-0.233 (0.261)	-0.336 (0.428)	0.799 (0.475)	1.016 (0.691)	0.161 (2.107)
2011	1.247 (3.161)	1.224 (0.884)	0.493 (0.890)	0.250 (0.189)	0.063 (0.735)	0.023 (0.380)	-0.665 (0.682)	-0.139 (0.248)	-0.623 (0.421)	1.249** (0.484)	1.062 (0.710)	-1.815 (2.070)
2012	-4.163 (2.961)	2.299* (0.897)	-0.494 (0.847)	0.124 (0.190)	0.360 (0.651)	-0.451 (0.364)	-1.464* (0.594)	-0.063 (0.241)	0.068 (0.470)	0.610 (0.456)	0.116 (0.606)	-5.013** (1.906)
2013	-1.901 (3.158)	4.169*** (0.921)	-0.825 (0.883)	-0.072 (0.204)	-0.692 (0.670)	-0.356 (0.381)	-1.550* (0.626)	0.078 (0.235)	0.101 (0.484)	0.160 (0.516)	0.207 (0.648)	-2.925 (2.119)
2014	-6.397* (3.175)	4.317*** (0.969)	-0.974 (0.902)	-0.316 (0.222)	-0.463 (0.663)	-0.555 (0.362)	-2.239*** (0.585)	0.329 (0.222)	-0.025 (0.456)	-1.261* (0.495)	-0.714 (0.518)	-4.286 (2.241)

2015	-6.390*	3.882***	-0.753	-0.112	0.127	-1.118**	-3.227***	0.322	-0.010	-0.839	-0.398	-4.032
	(3.008)	(0.887)	(0.902)	(0.210)	(0.689)	(0.368)	(0.564)	(0.226)	(0.450)	(0.515)	(0.553)	(2.137)
2016	-11.288***	4.110***	-1.221	-0.533*	-0.980	-0.519	-2.265***	0.059	-0.473	-1.583**	-0.528	-7.355***
	(2.868)	(0.893)	(0.841)	(0.215)	(0.595)	(0.383)	(0.607)	(0.229)	(0.432)	(0.518)	(0.515)	(1.943)
2017	-36.407***	1.802	-3.871***	-1.027***	-0.922	-1.384**	-2.178***	-0.008	-0.596	-3.233***	-1.767***	-22.939***
	(2.913)	(1.103)	(0.817)	(0.289)	(0.612)	(0.460)	(0.620)	(0.273)	(0.413)	(0.601)	(0.437)	(2.050)
2018	-39.901***	0.662	-3.934***	-1.428***	-0.379	-1.497***	-1.814***	0.123	-0.470	-4.467***	-2.157***	-24.162***
	(2.196)	(0.902)	(0.648)	(0.276)	(0.458)	(0.403)	(0.505)	(0.234)	(0.363)	(0.578)	(0.287)	(1.679)
2019	-40.147***	1.865*	-4.499***	-1.643***	-0.622	-1.537***	-1.805***	0.003	-0.730*	-4.865***	-1.862***	-24.023***
	(2.062)	(0.920)	(0.704)	(0.300)	(0.437)	(0.394)	(0.505)	(0.224)	(0.349)	(0.568)	(0.310)	(1.571)

HIES-D: Age 25-59

2010	0.453	-0.035	-0.190	0.177	-0.212	-0.563	-0.388	-0.255	-0.343	1.167	1.263	-0.441
	(3.657)	(0.169)	(0.223)	(0.239)	(0.963)	(0.453)	(0.503)	(0.249)	(0.256)	(0.602)	(1.121)	(2.767)
2011	-1.965	-0.148	-0.196	0.219	-0.250	-0.478	-0.621	-0.290	-0.368	1.498*	1.674	-3.299
	(3.681)	(0.169)	(0.240)	(0.253)	(1.001)	(0.448)	(0.493)	(0.247)	(0.259)	(0.614)	(1.156)	(2.660)
2012	-10.051**	-0.020	-0.240	-0.060	-0.433	-1.714***	-1.325**	-0.325	-0.243	0.913	0.908	-7.670**
	(3.531)	(0.171)	(0.207)	(0.257)	(0.943)	(0.461)	(0.413)	(0.243)	(0.259)	(0.620)	(1.114)	(2.631)
2013	-11.191**	0.115	-0.230	-0.179	-0.349	-2.205***	-1.383***	-0.156	-0.189	0.158	-0.142	-6.763*
	(3.672)	(0.162)	(0.208)	(0.274)	(0.949)	(0.470)	(0.376)	(0.227)	(0.249)	(0.640)	(1.044)	(2.757)
2014	-13.837***	0.275	-0.067	-0.500	-0.176	-2.485***	-1.702***	-0.005	-0.123	-0.975	-1.204	-6.954*
	(3.640)	(0.163)	(0.268)	(0.285)	(1.006)	(0.502)	(0.381)	(0.224)	(0.250)	(0.642)	(1.009)	(2.960)
2015	-13.371***	0.185	-0.063	-0.270	0.765	-3.159***	-1.910***	-0.043	-0.173	-0.755	-1.196	-6.792*
	(3.865)	(0.177)	(0.239)	(0.280)	(1.017)	(0.527)	(0.328)	(0.251)	(0.258)	(0.683)	(1.013)	(2.974)
2016	-22.265***	-0.027	-0.224	-0.855**	-0.551	-2.852***	-1.573***	-0.133	-0.190	-1.915**	-1.362	-12.668***
	(3.397)	(0.179)	(0.194)	(0.299)	(0.845)	(0.511)	(0.354)	(0.247)	(0.254)	(0.688)	(0.868)	(2.690)
2017	-45.686***	-0.250	-0.328*	-1.787***	-0.516	-3.900***	-1.513***	-0.009	-0.144	-4.467***	-2.934***	-29.724***
	(2.920)	(0.208)	(0.153)	(0.395)	(0.822)	(0.591)	(0.368)	(0.272)	(0.259)	(0.832)	(0.761)	(2.473)
2018	-47.887***	-0.288	-0.552***	-2.367***	-0.409	-3.290***	-1.094***	-0.038	-0.173	-6.069***	-3.512***	-30.058***
	(2.331)	(0.201)	(0.124)	(0.403)	(0.657)	(0.501)	(0.319)	(0.248)	(0.244)	(0.752)	(0.545)	(2.024)
2019	-47.725***	-0.127	-0.393**	-2.832***	-1.069	-3.688***	-1.006***	-0.144	-0.303	-6.622***	-3.091***	-28.410***
	(2.286)	(0.203)	(0.147)	(0.459)	(0.557)	(0.528)	(0.281)	(0.249)	(0.213)	(0.819)	(0.527)	(1.965)

Notes: %Δ refers to % changes in the variance of log income relative to 2009. Bootstrapped standard errors from 1,000 replications in parentheses. HIES-A includes the labor income of household heads and their spouses in city households with at least 2 family members. HIES-D includes the personal income of all individuals in all

households.
* p<0.05, ** p<0.01, *** p<0.001 (two-tailed tests)

<Appendix Table 3> Mean log individual income by age group

	25-29	30-39	40-49	50-59	60-69	70-79
HIES-A: Labor income						
1999	4.751	4.923	4.932	4.739	4.255	4.292
2000	4.547	4.768	4.723	4.609	4.118	4.068
2001	4.604	4.767	4.809	4.591	4.256	4.189
2002	4.766	4.829	4.877	4.711	4.373	4.211
2003	4.516	4.660	4.701	4.559	4.030	3.096
2004	4.676	4.769	4.814	4.699	4.155	3.168
2005	4.761	4.812	4.879	4.715	4.222	3.812
2006	4.747	5.045	5.019	4.817	4.298	3.955
2007	4.943	5.156	5.120	4.957	4.316	4.001
2008	4.871	5.223	5.131	5.040	4.382	3.847
2009	4.950	5.167	5.145	4.945	4.253	3.772
2010	4.964	5.173	5.129	4.951	4.249	3.774
2011	5.108	5.233	5.175	4.903	4.280	3.587
2012	4.950	5.281	5.283	5.024	4.340	3.636
2013	4.935	5.328	5.366	5.045	4.409	3.796
2014	5.021	5.329	5.425	5.117	4.588	3.841
2015	5.022	5.293	5.391	5.183	4.546	3.841
2016	5.053	5.379	5.405	5.193	4.597	3.669
2017	5.318	5.466	5.510	5.359	4.685	3.813
2018	5.295	5.554	5.534	5.440	4.877	3.905
2019	5.360	5.571	5.641	5.490	4.987	3.948
HIES-D: Personal (Labor+Business) income						
2009	5.020	5.183	5.166	4.872	4.037	3.015
2010	5.060	5.184	5.183	4.909	4.058	2.953
2011	5.201	5.227	5.237	4.909	4.077	3.041
2012	5.160	5.271	5.295	5.042	4.210	3.200
2013	5.144	5.287	5.351	5.063	4.236	3.233
2014	5.129	5.318	5.370	5.103	4.381	3.239
2015	5.186	5.288	5.381	5.128	4.336	3.334
2016	5.238	5.347	5.415	5.174	4.420	3.308
2017	5.331	5.428	5.477	5.284	4.644	3.648
2018	5.425	5.499	5.516	5.365	4.766	3.689
2019	5.377	5.552	5.556	5.413	4.841	3.805

Notes: HIES-A includes the labor income of household heads and their spouses in city households with at least 2 family members. HIES-D includes the personal income of all individuals in all households. Inflation adjusted to 2016 constant KRW.

<Appendix Table 4> Conditional quantile regression results on log personal income: 2009-2019

	2009-2010			2011-2013			2014-2016			2017-2019		
	Q10	Q50	Q90	Q10	Q50	Q90	Q10	Q50	Q90	Q10	Q50	Q90
HIES-D: Without education controls												
Ref: 40-44												
25-29	-0.039 (0.084)	-0.068* (0.030)	-0.139*** (0.028)	-0.012 (0.056)	-0.099*** (0.022)	-0.272*** (0.025)	-0.183* (0.074)	-0.142*** (0.026)	-0.265*** (0.029)	0.049 (0.066)	-0.101*** (0.029)	-0.331*** (0.032)
30-34	0.082 (0.051)	0.014 (0.022)	-0.042 (0.026)	0.070 (0.038)	-0.067*** (0.019)	-0.179*** (0.021)	-0.056 (0.034)	-0.057** (0.019)	-0.152*** (0.016)	0.036 (0.049)	-0.026 (0.027)	-0.156*** (0.026)
35-39	0.137** (0.044)	0.047* (0.019)	-0.006 (0.031)	0.074* (0.036)	-0.004 (0.016)	-0.074** (0.025)	-0.000 (0.029)	-0.020 (0.016)	-0.091*** (0.019)	0.055 (0.036)	-0.016 (0.022)	-0.109*** (0.027)
45-49	0.017 (0.049)	0.019 (0.022)	0.117** (0.038)	0.002 (0.040)	-0.002 (0.016)	0.036 (0.031)	-0.046 (0.040)	0.034 (0.018)	0.139*** (0.029)	-0.055 (0.043)	0.019 (0.022)	0.083* (0.033)
50-54	-0.284*** (0.044)	-0.177*** (0.024)	-0.029 (0.033)	-0.282*** (0.043)	-0.147*** (0.020)	-0.113*** (0.031)	-0.261*** (0.042)	-0.095*** (0.020)	0.017 (0.028)	-0.177** (0.057)	-0.068** (0.024)	0.000 (0.038)
55-59	-0.546*** (0.089)	-0.421*** (0.030)	-0.213*** (0.043)	-0.629*** (0.048)	-0.346*** (0.022)	-0.160*** (0.030)	-0.630*** (0.045)	-0.315*** (0.021)	-0.154*** (0.032)	-0.277*** (0.039)	-0.208*** (0.022)	-0.091* (0.040)
Constant	4.056*** (0.022)	5.227*** (0.007)	6.017*** (0.011)	4.209*** (0.015)	5.310*** (0.005)	6.082*** (0.009)	4.338*** (0.017)	5.387*** (0.005)	6.135*** (0.010)	4.643*** (0.018)	5.496*** (0.007)	6.206*** (0.011)
N	24,767	24,767	24,767	34,066	34,066	34,066	28,327	28,327	28,327	13,607	13,607	13,607
Pseudo R ²	0.210	0.176	0.091	0.238	0.183	0.092	0.214	0.173	0.081	0.160	0.142	0.069
HIES-D: With education controls												
Ref: 40-44												
25-29	-0.125 (0.095)	-0.148*** (0.030)	-0.251*** (0.024)	-0.055 (0.066)	-0.176*** (0.023)	-0.283*** (0.030)	-0.251** (0.091)	-0.179*** (0.023)	-0.248*** (0.030)	-0.065 (0.072)	-0.145*** (0.022)	-0.283*** (0.042)
30-34	-0.014 (0.070)	-0.092*** (0.021)	-0.148*** (0.019)	-0.022 (0.036)	-0.138*** (0.017)	-0.169*** (0.016)	-0.101* (0.044)	-0.118*** (0.017)	-0.144*** (0.023)	-0.041 (0.062)	-0.090*** (0.025)	-0.140*** (0.024)
35-39	0.084 (0.051)	-0.010 (0.017)	-0.042* (0.019)	0.029 (0.035)	-0.075*** (0.015)	-0.102*** (0.021)	-0.016 (0.042)	-0.056** (0.015)	-0.089*** (0.019)	-0.030 (0.051)	-0.031 (0.019)	-0.090*** (0.026)
45-49	0.070 (0.055)	0.071*** (0.020)	0.111*** (0.027)	0.022 (0.038)	0.028* (0.013)	0.089*** (0.020)	-0.020 (0.039)	0.075*** (0.017)	0.161*** (0.022)	-0.077 (0.060)	0.041* (0.017)	0.115*** (0.027)

50-54	-0.179** (0.061)	0.009 (0.023)	0.092*** (0.024)	-0.163*** (0.044)	-0.048** (0.018)	0.050* (0.021)	-0.147*** (0.043)	0.006 (0.018)	0.098*** (0.025)	-0.168** (0.062)	0.001 (0.019)	0.116*** (0.026)
55-59	-0.358*** (0.090)	-0.149*** (0.025)	-0.019 (0.033)	-0.416*** (0.066)	-0.176*** (0.021)	0.032 (0.026)	-0.475*** (0.046)	-0.173*** (0.022)	-0.011 (0.029)	-0.192*** (0.057)	-0.074** (0.023)	0.050 (0.034)
Constant	4.054*** (0.024)	5.246*** (0.007)	5.927*** (0.007)	4.226*** (0.018)	5.317*** (0.005)	5.989*** (0.007)	4.347*** (0.018)	5.391*** (0.006)	6.063*** (0.007)	4.676*** (0.020)	5.511*** (0.006)	6.123*** (0.010)
N	24,767	24,767	24,767	34,066	34,066	34,066	28,327	28,327	28,327	13,607	13,607	13,607
Pseudo R ²	0.225	0.216	0.173	0.251	0.216	0.161	0.224	0.199	0.132	0.172	0.185	0.147

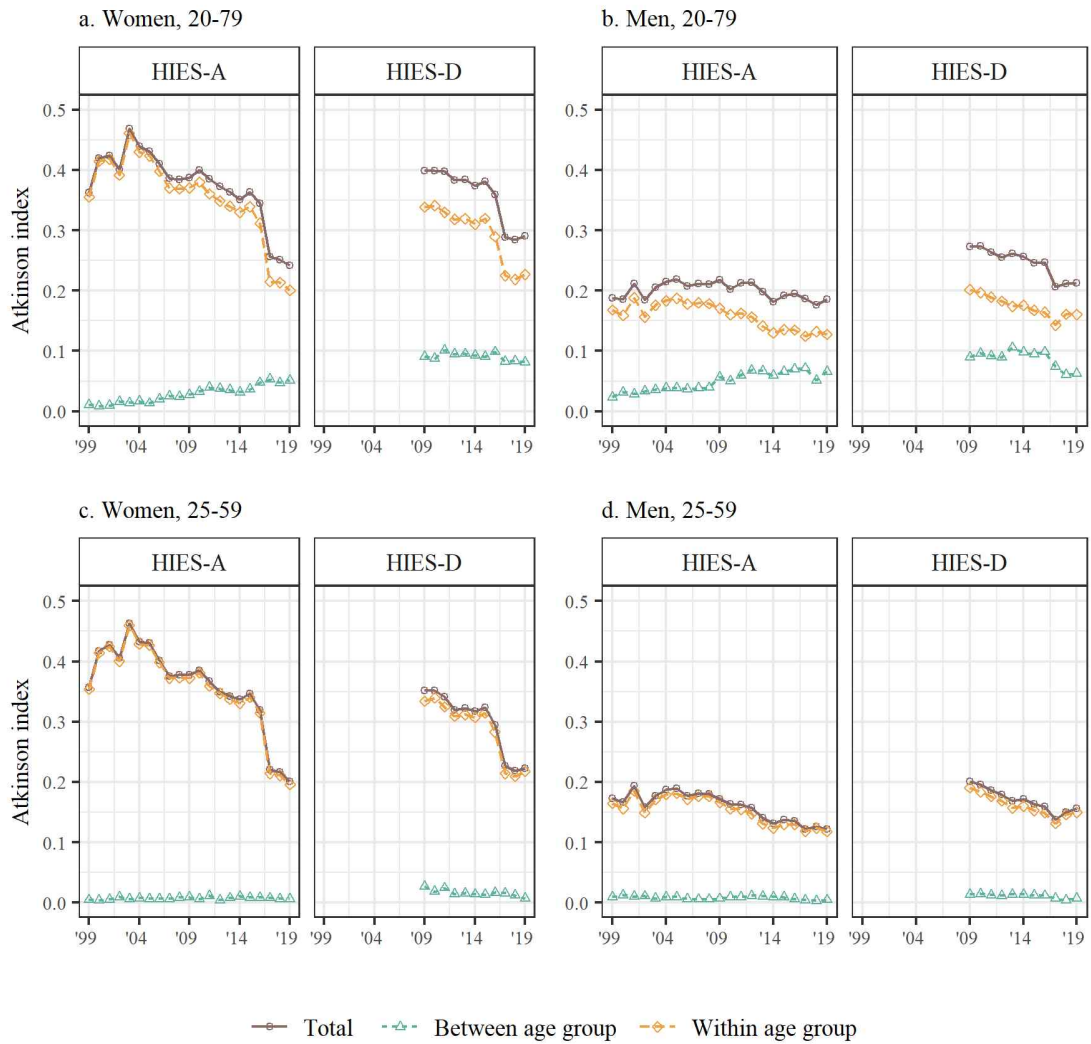
Notes: Control variables include family type, relationship to household head. Coefficients and standard errors for controlled variables are not shown to save space. Robust standard errors in parentheses. HIES-D include the personal income of all individuals in all households from Household Income and Expenditure Survey.
* p<0.05, ** p<0.01, *** p<0.001 (two-tailed tests)

<Appendix Table 5> Yearly individual income growth rate(%) of conditional quantiles

	Q10	Q20	Q30	Q40	Q50	Q60	Q70	Q80	Q90
HIES-A, between 2009-2010 and 2017-2019: Without education controls									
25-29	4.2	5.8	5.0	4.3	4.6	4.5	3.2	1.5	1.6
30-34	5.3	4.8	4.1	3.5	3.1	2.5	1.8	4.6	0.9
35-39	6.5	5.8	4.8	3.9	3.0	2.3	1.7	1.6	0.7
40-44	8.4	6.3	5.3	4.3	3.5	3.2	2.7	2.6	1.9
45-49	6.3	5.5	4.8	4.3	3.8	3.3	2.7	2.7	2.3
50-54	8.1	7.0	6.3	5.8	5.2	4.8	3.5	3.1	2.7
55-59	8.4	7.3	7.2	6.8	6.0	5.3	4.7	3.8	3.0
HIES-A, between 2009-2010 and 2017-2019: With education controls									
25-29	2.6	6.4	5.9	5.0	5.2	4.1	3.1	3.2	3.8
30-34	4.6	5.0	4.5	4.1	3.8	3.0	2.0	1.8	2.0
35-39	6.2	5.9	4.9	4.1	3.4	2.7	2.1	1.9	1.9
40-44	8.3	6.1	5.2	4.3	3.7	3.1	2.6	2.3	2.2
45-49	5.7	5.2	4.7	4.1	3.4	2.6	2.0	1.9	2.4
50-54	7.3	6.5	5.4	4.4	3.9	3.1	2.5	2.1	2.4
55-59	7.1	7.0	6.7	5.3	4.5	3.8	3.1	2.9	2.2
HIES-D, between 2009-2010 and 2017-2019: Without education controls									
25-29	6.8	5.9	4.3	3.2	2.5	2.0	1.8	1.2	0.2
30-34	5.6	4.5	3.8	3.2	2.6	2.4	2.4	2.1	1.0
35-39	5.4	4.6	3.7	3.1	2.3	2.1	1.8	1.7	1.0
40-44	6.5	4.9	4.1	3.4	3.0	2.6	2.4	2.3	2.1
45-49	5.6	4.8	4.0	3.7	3.1	2.9	2.8	2.5	2.1
50-54	7.7	6.6	5.0	5.2	4.3	4.0	3.7	3.4	2.8
55-59	9.4	7.8	6.6	5.9	5.3	4.8	4.3	4.1	3.4
HIES-D, between 2009-2010 and 2017-2019: With education controls									
25-29	6.8	5.9	4.5	3.9	3.0	2.4	2.2	2.0	2.0
30-34	6.3	4.7	3.9	3.4	3.0	2.7	2.8	2.3	2.4
35-39	5.5	4.6	3.7	3.3	2.8	2.5	2.5	2.1	1.8
40-44	6.9	4.7	4.0	3.6	2.9	2.6	2.4	2.3	2.2
45-49	5.1	3.7	3.7	3.4	2.8	2.4	2.4	2.1	2.5
50-54	7.0	5.1	4.3	3.7	3.0	2.6	2.7	2.5	2.6
55-59	8.4	6.2	4.9	4.6	3.7	3.4	3.2	2.8	2.8

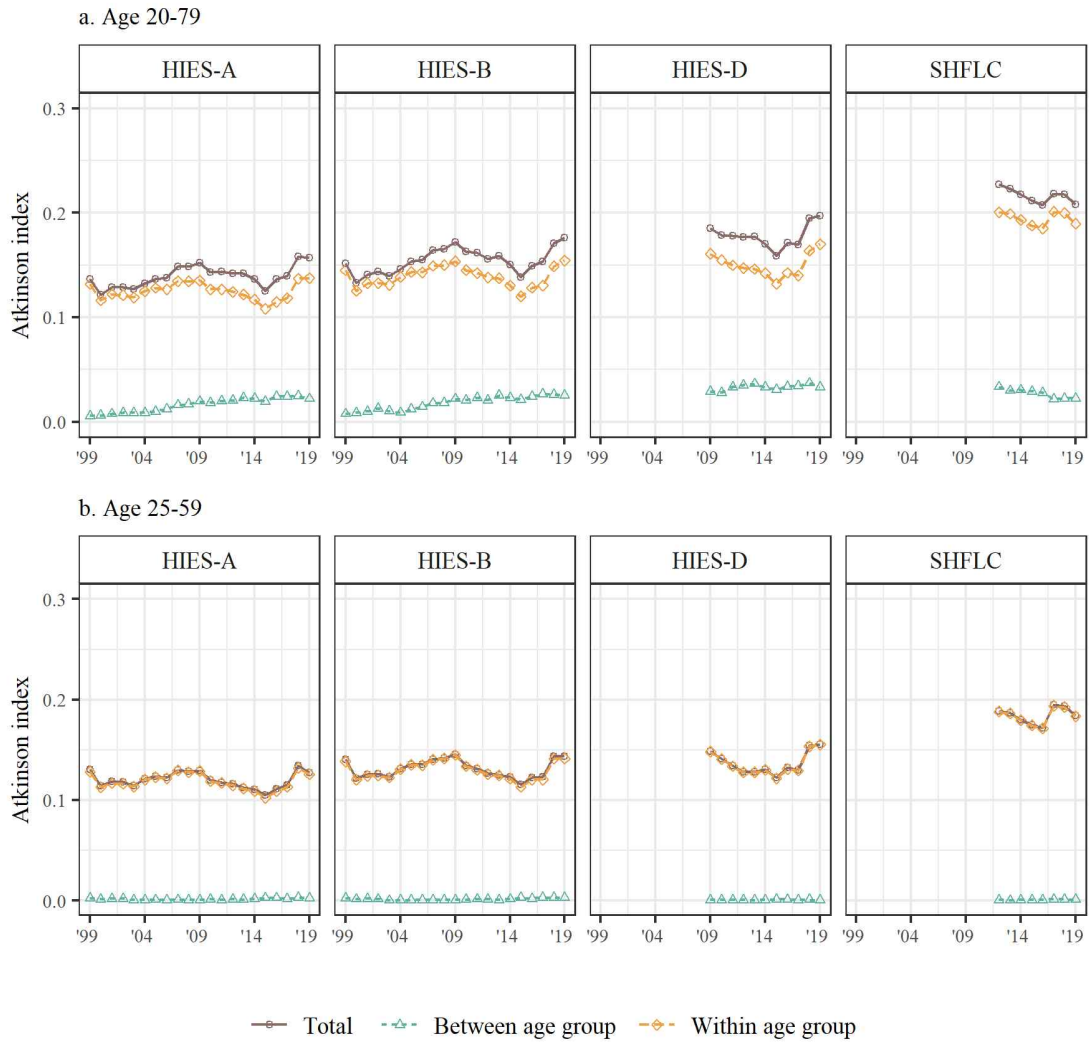
Notes: Growth rate for each age group calculated from conditional quantile regression results in Figure 6 and Figure 7. HIES-A includes the labor income of household heads and their spouses in city households with at least 2 family members. HIES-D includes the personal income of all individuals in all households from Household Income and Expenditure Survey.

<Appendix Figure 1> Between- and within- age group individual income inequality by sex



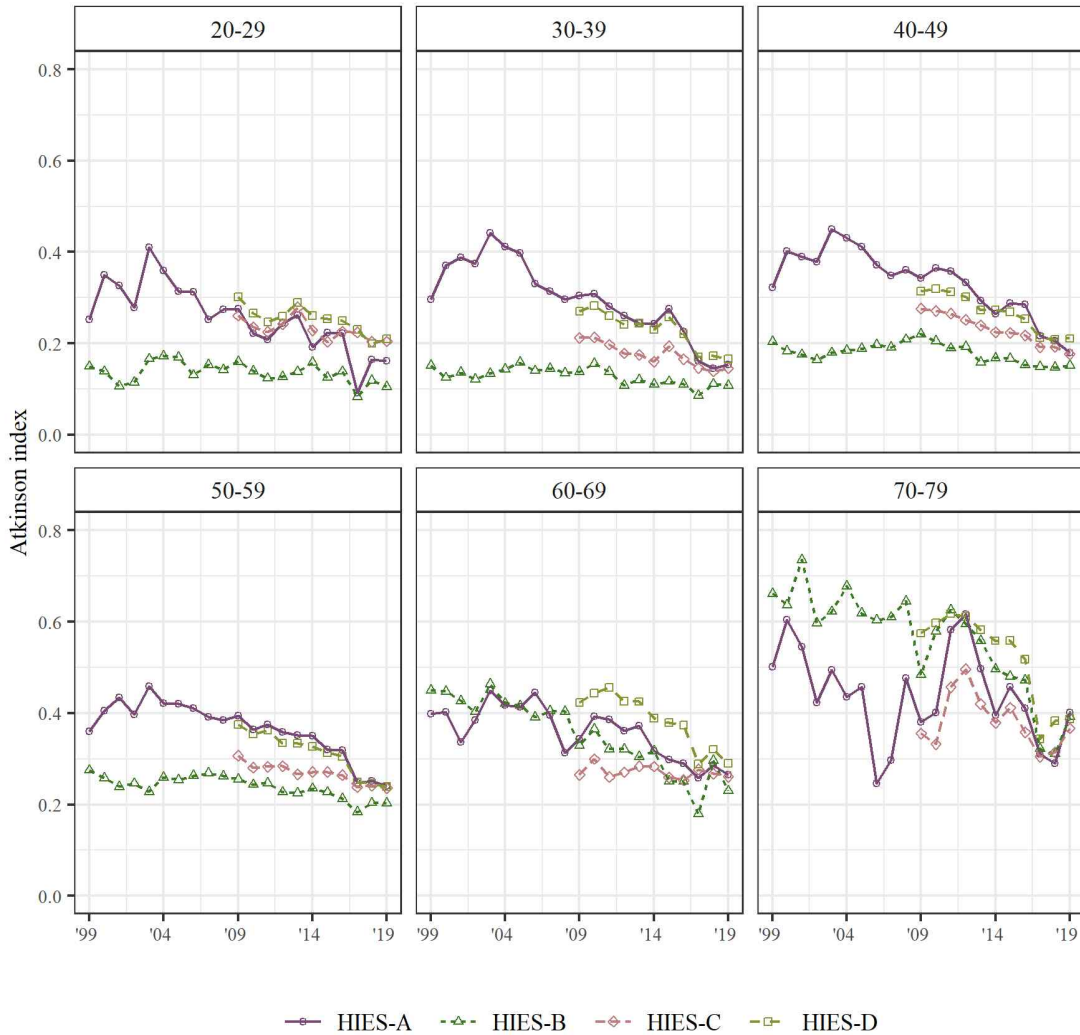
Notes: Atkinson inequality index with income aversion parameter of 1. Between and within age group inequality is based on 5 year incremental age indicator variable. Total = Between + Within - Between \times Within. HIES-A shows the labor income of household heads and their spouses in city households with at least 2 family members. HIES-D shows the personal income of all individuals in all households. HIES series are based on Household Income and Expenditure Survey.

<Appendix Figure 2> Between- and within-age group inequality in equivalized income



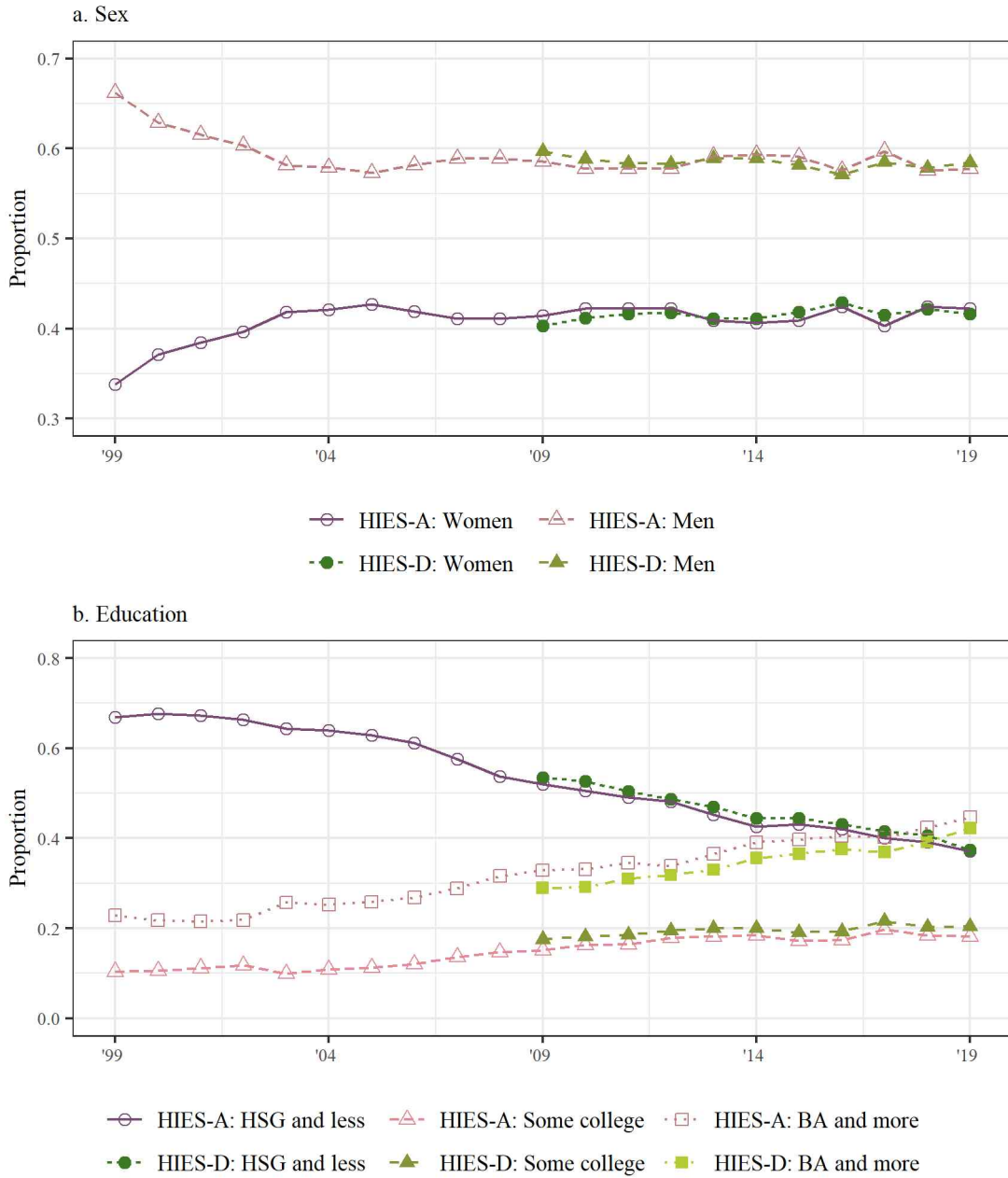
Notes: Atkinson inequality index with income aversion parameter of 1. Between and within age group inequality is based on 5 year incremental age indicator variable. Total = Between + Within - Between × Within. HIES-A includes household heads and their spouses in city households with at least 2 family members. HIES-B includes household heads in city households with at least 2 family members. HIES-D includes all individuals in all households. HIES series are based on Household Income and Expenditure Survey. SHFLC refers to the Survey of Household Finances and Living Conditions which includes all individuals of all households.

<Appendix Figure 3> Individual income inequality by age group



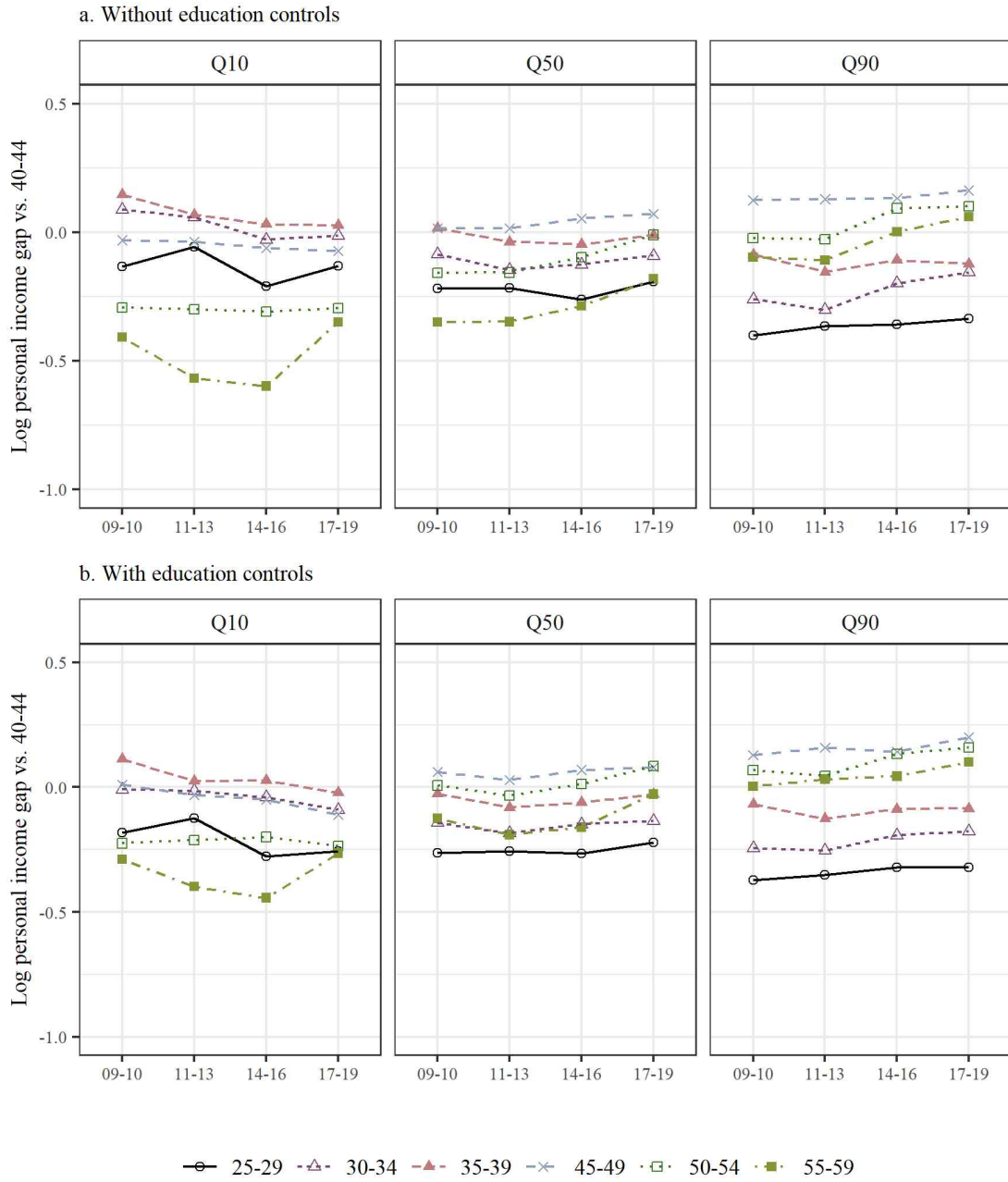
Notes: Atkinson inequality index with income aversion parameter of 1. HIES-A shows the labor income of household heads and their spouses in city households with at least 2 family members. HIES-B shows the personal income of household heads in city households with at least 2 family members. HIES-C shows labor income of all individuals in all households. HIES-D shows the personal income of all individuals in all households. All series are based on Household Income and Expenditure Survey.

<Appendix Figure 4> Proportion by sex and levels of education among 25-59 year old employed workers with positive income



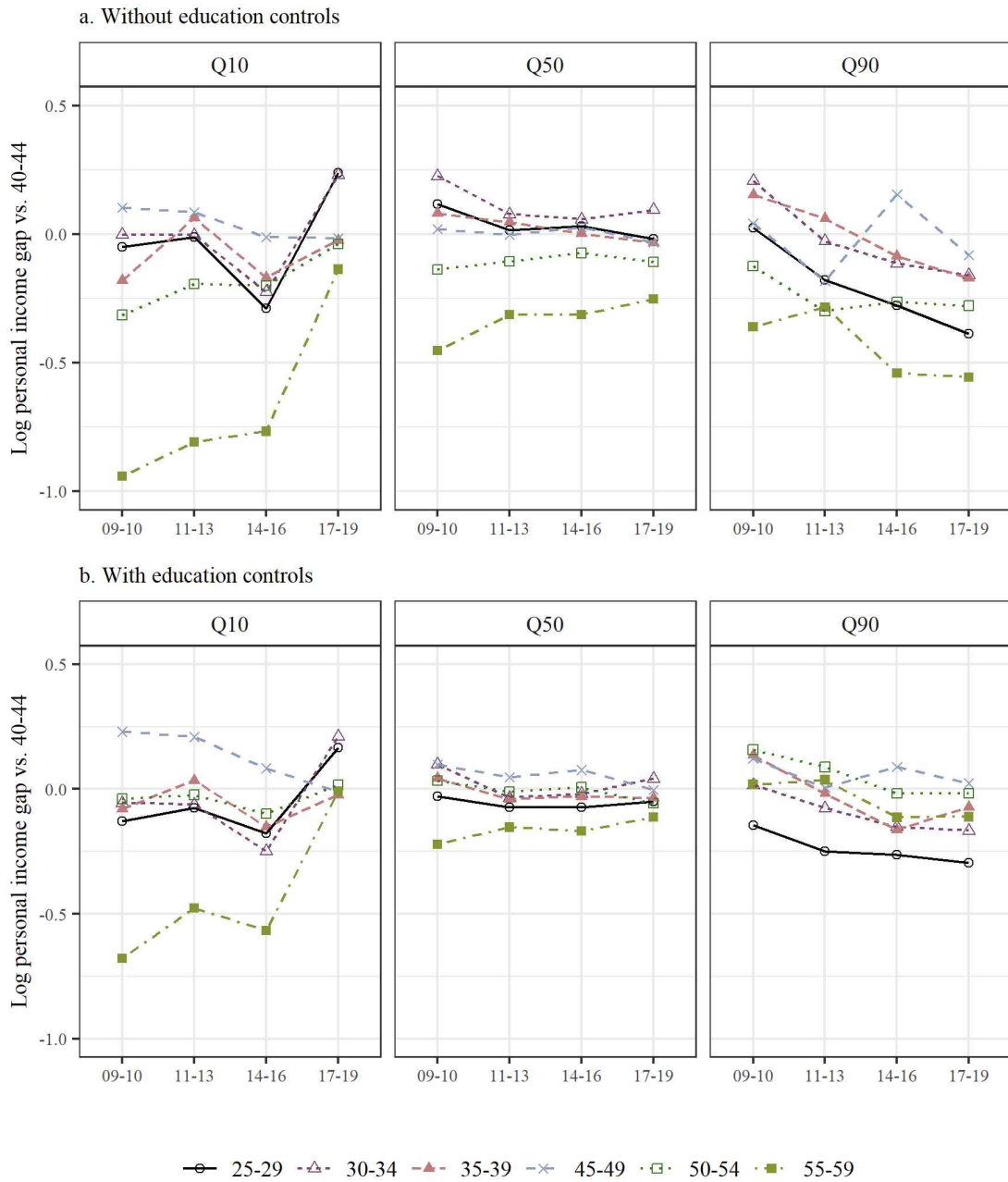
Notes: HIES-A refers to household heads and their spouses in city households with at least 2 family members from Household Income and Expenditure Survey. HIES-B includes all individuals of all households from the same data. HSG refers to high school graduates and BA refers to bachelor's degree holders.

<Appendix Figure 5> Estimated log personal income gap across conditional quantiles relative to 40-44 year old among men, HIES-D



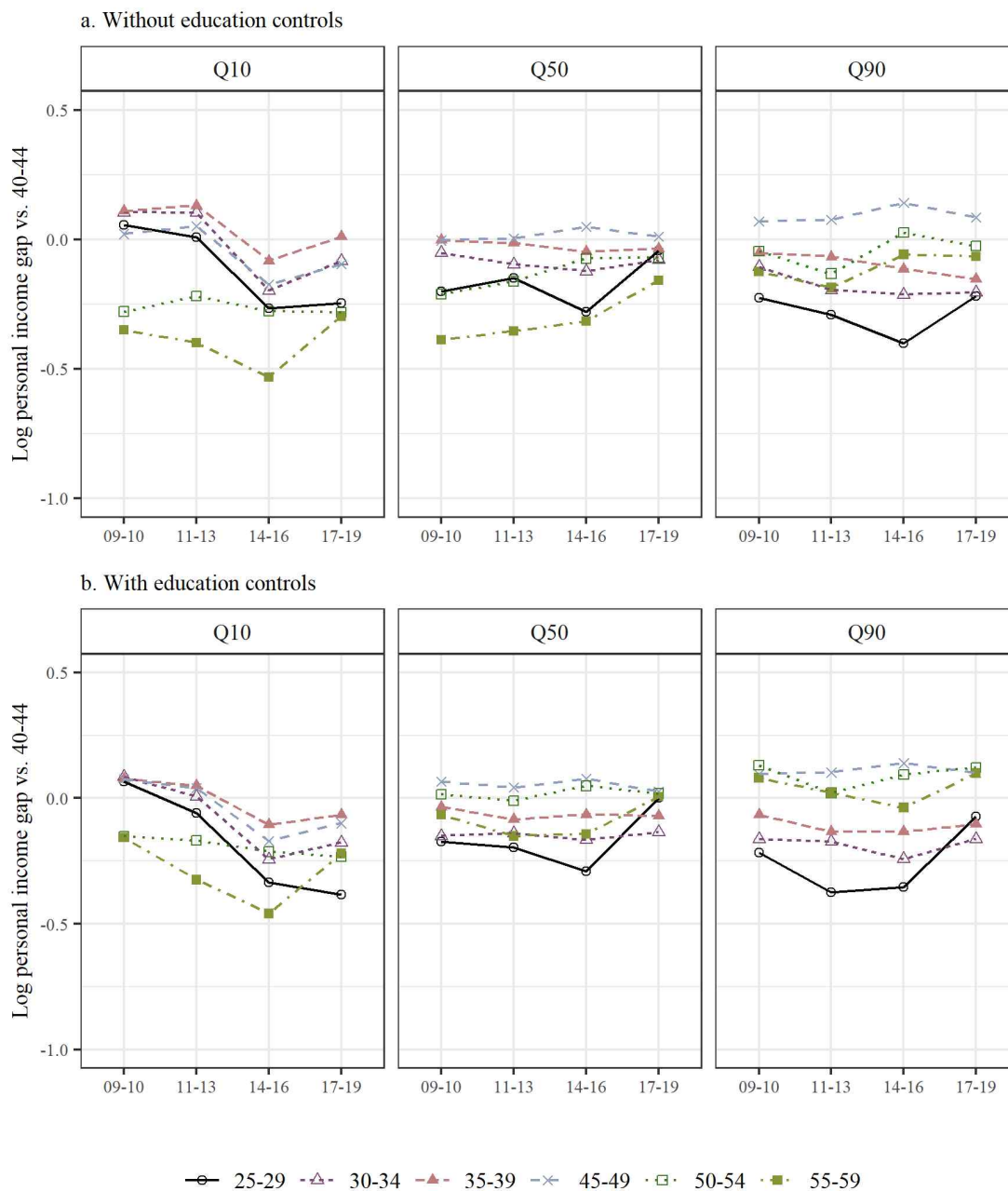
Notes: Control variables include sex, family type, relationship to household head. HIES-D includes all individuals of all households from Household Income and Expenditure Survey.

<Appendix Figure 6> Estimated log personal income gap across conditional quantiles relative to 40-44 year old among women, HIES-D



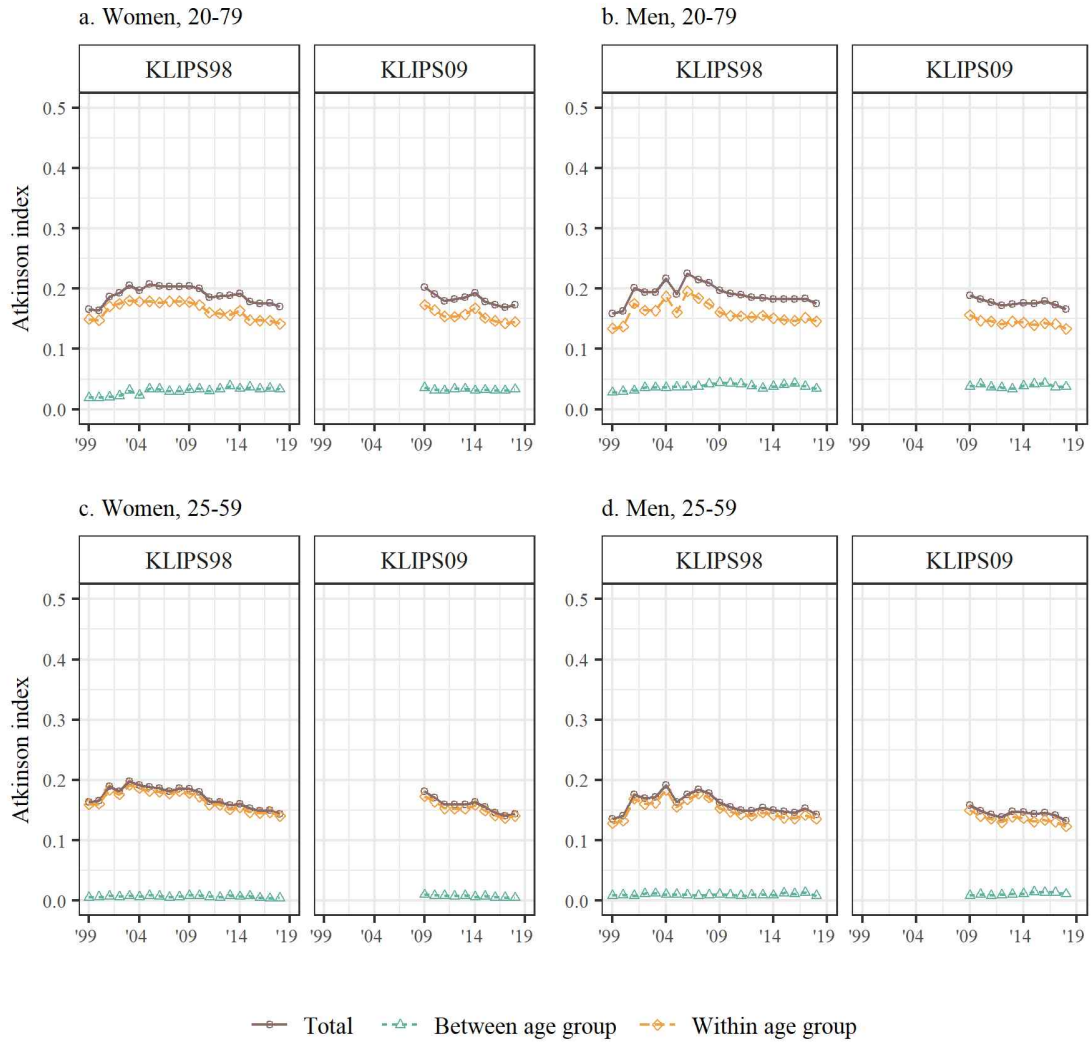
Notes: Control variables include sex, family type, relationship to household head. HIES-D includes all individuals of all households from Household Income and Expenditure Survey.

<Appendix Figure 7> Estimated log labor income gap across conditional quantiles relative to 40-44 year olds, HIES-A.



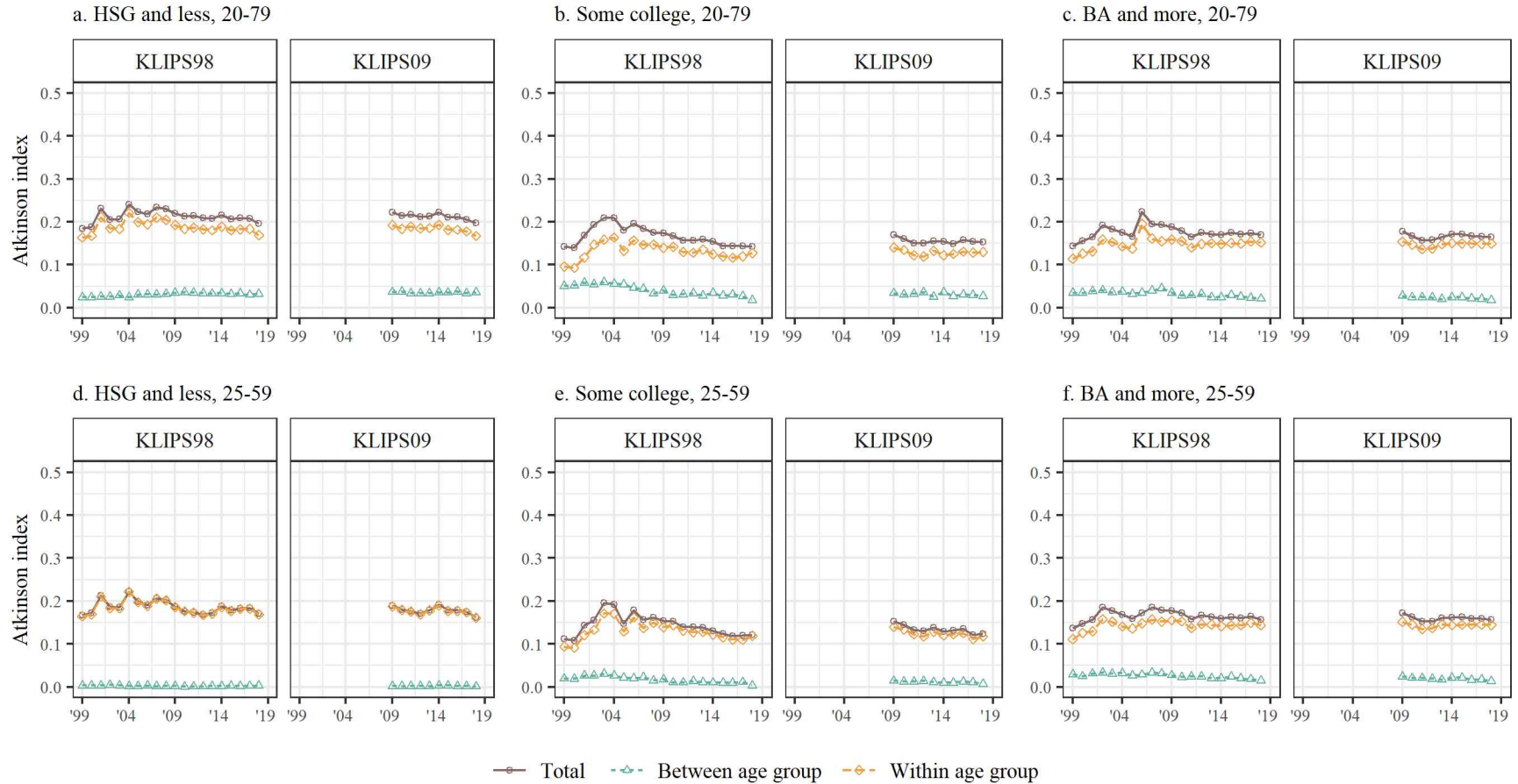
Notes: Control variables include sex, family type, relationship to household head. HIES-A refers to household heads and their spouses in city households with at least 2 family members from Household Income and Expenditure Survey.

<Appendix Figure 8> Between- and within- age group personal income inequality by sex: KLIPS



Notes: Atkinson inequality index with income aversion parameter of 1. Between and within age group inequality is based on 5 year incremental age indicator variable. Total = Between + Within - Between × Within.

<Appendix Figure 9> Between- and within- age group personal income inequality by levels of education: KLIPS



Notes: Atkinson inequality index with income aversion parameter of 1. Between and within age group inequality is based on 5 year incremental age indicator variable. Total = Between + Within - Between × Within.