Online Appendix

Place Effects and Geographic Inequality in Health at Birth

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Table A1: Distribution of Distance Between Origin and Destination

Average Move Distance (mi.)	31.227
25th Percentile of Move Distance (mi.)	4.206
50th Percentile of Move Distance (mi.)	8.840
75th Percentile of Move Distance (mi.)	21.674
Share of Moves that Cross Counties	0.275
Observations	7,412,595

Notes: This table presents summary statistics for the average and the 25th, 50th, and 75th percentiles of the distance of moves for movers in our estimation sample using Zip-level moves. Distance is measured as the miles between centroids of the origin and destination Zip codes for each mover.

Table A2: Summary Statistics for Cross-City and Cross-County Moves

	(1)	(2)	(3)	(4)	(5)	(6)
	Estimation sample: Cross-city moves			Estimation sample: Cross-county moves		
	All	Non-movers	Movers	All	Non-movers	Movers
Infant birth weight (g)	3,339.025	3,325.530	3,363.619	3,340.472	3,335.133	3,371.462
	(572.8)	(584.3)	(550.3)	(571.2)	(574.6)	(550.1)
Black mother	0.057	0.052	0.067	0.059	0.057	0.069
	(0.232)	(0.222)	(0.250)	(0.236)	(0.233)	(0.253)
White, non-Hispanic mother	0.802	0.804	0.800	0.804	0.806	0.792
	(0.398)	(0.397)	(0.400)	(0.397)	(0.395)	(0.406)
Hispanic mother	0.462	0.467	0.451	0.466	0.476	0.410
	(0.499)	(0.499)	(0.498)	(0.499)	(0.499)	(0.492)
Asian mother	0.088	0.093	0.079	0.085	0.086	0.080
	(0.284)	(0.291)	(0.269)	(0.279)	(0.280)	(0.271)
Mother has HS degree	0.764	0.756	0.779	0.760	0.755	0.787
	(0.425)	(0.429)	(0.415)	(0.427)	(0.430)	(0.409)
Mother has college degree	0.265	0.279	0.239	0.256	0.257	0.249
	(0.441)	(0.448)	(0.426)	(0.436)	(0.437)	(0.432)
Maternal age	28.015	28.297	27.500	27.890	27.954	27.522
	(6.027)	(6.060)	(5.934)	(6.040)	(6.051)	(5.962)
Number of births	2.469	2.422	2.556	2.523	2.499	2.663
	(0.659)	(0.637)	(0.688)	(0.687)	(0.677)	(0.725)
Observations	7,804,535	5,039,381	2,765,154	8,282,579	7,065,297	1,217,282

Notes: This table presents summary statistics based on birth records from California (1989-2017). Columns 1-3 provide statistics for the estimation sample for our analysis of cross-city moves. Columns 4-6 provide statistics for the estimation sample for our analysis of cross-county moves.

Table A3: Impacts of Place on Birth Weight by Distance of Move

Dest-Origin Diff. in BW (100's of grams) x Post x Move 0-5 mi	4.637*
	(2.602)
Dest-Origin Diff. in BW (100's of grams) x Post x Move 5-10 mi	4.398*
	(2.343)
Dest-Origin Diff. in BW (100's of grams) x Post x Move 10-25 mi	5.874***
	(2.150)
Dest-Origin Diff. in BW (100's of grams) x Post x Move at least 25 mi	18.935***
	(2.040)
Mean Y	3338.443
Individuals	7,362,933

Notes: This table presents estimates of the within-mother change in birth weight around a Zip-level move using a modified version of our difference-in-differences specification. Specifically, we estimate the following equation:

$$y^c_{mjkt} = \alpha_m + \theta_1 \hat{\delta}_m \times post_{mk} \times Move05 + \theta_2 \hat{\delta}_m \times post_{mk} \times Move510 + \theta_3 \hat{\delta}_m \times post_{mk} \times Move1025 \\ + \theta_4 \hat{\delta}_m \times post_{mk} \times Move25pl + \omega_k + \nu_t + x_{mk}\eta + \varepsilon^c_{mjkt}.$$

This equation replaces the relative birth order dummies in our event study model with $post_{mk}$, an indicator for the births that occur after a mother's move, and allows the coefficient on the $\hat{\delta}_m \times post_{mk}$ interaction to vary for mothers that move (i) up to 5 miles, $Move05$; (ii) between 5-10 miles, $Move510$; (iii) between 10-25 miles, $Move1025$; or (iv) more than 25 miles, $Move25pl$. The key coefficients of interest are θ_1, θ_2, θ_3, and θ_4, the parameters on the interactions between $\hat{\delta}_m \times post_{mk}$ and each of the distance of move variables. Standard errors are clustered at the origin Zip code level.

Table A4: Impact of Reweighting Estimates of Place to Account for Covariate Imbalance Across Movers and Non-Movers

	Base	Reweight
A: Cross-Zip moves		
Dest-Origin Diff. in BW (100's of grams) x Post	9.956***	8.354***
	(1.174)	(2.546)
Mean Y	3338.460	3365.685
Observations	7,374,648	7,082,069
B: Cross-city moves		
Dest-Origin Diff. in BW (100's of grams) x Post	13.711***	15.609***
	(1.341)	(2.639)
Mean Y	3338.624	3361.658
Observations	7,765,245	7,463,154
C: Cross-county moves		
Dest-Origin Diff. in BW (100's of grams) x Post	26.266***	32.894***
	(3.646)	(5.302)
Mean Y	3340.112	3364.334
Observations	8,243,738	7,931,251

Notes: This table presents estimates from our difference-in-differences specification. Specifically, we estimate the following equation:

$$y^c_{mjkt} = \alpha_m + \theta\hat{\delta}_m \times post_{mk} + \omega_k + \nu_t + x_{mk}\eta + \varepsilon^c_{mjkt}.$$

This equation replaces the relative birth order dummies in our event study model with $post_{mk}$, an indicator for the births that occur after a mother's move. The key coefficient of interest is θ, the parameter on the term $\hat{\delta}_m \times post_{mk}$. We estimate this equation without weights (Column 1), as in our main analysis, and applying weights to correct for imbalance in maternal covariates between movers and non-movers (Column 2). We follow Miller, Shenhav and Grosz (2023) and generate the weights as the product of (i) the inverse of the probability of being a mover (estimated from fitted values from a logit model that includes fixed effects for maternal race/ethnicity and maternal education, and a linear term in maternal age) and (ii) the inverse of the within-mother variance in $\hat{\delta}_m \times post_{mk}$. Panels A, B and C present results for cross-Zip, cross-city, and cross-county moves, respectively. Standard errors are clustered at the relevant origin geography level.

Table A5: Correlation in Place Effects Across Groups and Time Periods

	(1) Zip	(2) City	(3) County
$corr(\gamma_j^{College}, \gamma_j^{Non-College})$	0.346	0.347	0.698
	(0.051)	(0.091)	(0.185)
$corr(\gamma_j^{White}, \gamma_j^{Hisp.})$	0.329	0.345	0.770
	(0.038)	(0.061)	(0.153)
$corr(\gamma_j^{'89-'04}, \gamma_j^{'05-17'})$	0.377	0.269	0.718
	(0.053)	(0.046)	(0.191)

Notes: This table presents estimated correlations between place effects estimated separately by demographic groups (e.g., college and non-college mothers) and time periods observed in our sample of birth records. All estimates are based on Equation 1, where the dependent variable is birth weight (in grams). Columns 1, 2, and 3 provide results estimated for moves at the Zip, city, and county levels, respectively.

Table A6: Impact of Moving to a Higher Quality Location on Other Infant Outcomes

	Birth weight (grams)	Log birth weight	Low birth weight	Very low birth weight	Gestation (days)	Premature
A: Cross-Zip moves						
Dest-Origin Diff. in BW (100's of grams) x Post	9.956***	0.003***	-0.057	-0.035*	0.334**	-0.102
	(1.174)	(0.000)	(0.050)	(0.021)	(0.132)	(0.075)
Mean Y	3338.460	8.095	6.494	1.007	268.089	12.540
Observations	7,374,648	7,374,647	7,374,648	7,374,648	7,371,360	7,371,360
B: Cross-city moves						
Dest-Origin Diff. in BW (100's of grams) x Post	13.711***	0.004***	-0.105*	-0.010	0.383*	-0.201
	(1.341)	(0.000)	(0.056)	(0.026)	(0.231)	(0.135)
Mean Y	3338.624	8.095	6.450	1.001	267.929	12.612
Observations	7,765,245	7,765,244	7,765,245	7,765,245	7,761,823	7,761,823
C: Cross-county moves						
Dest-Origin Diff. in BW (100's of grams) x Post	26.266***	0.008***	-0.279**	-0.059	1.345**	-0.900***
	(3.646)	(0.001)	(0.105)	(0.046)	(0.548)	(0.279)
Mean Y	3340.112	8.095	6.368	0.987	267.861	12.614
Observations	8,243,738	8,243,737	8,243,738	8,243,738	8,240,152	8,240,152

Notes: This table presents estimates from our difference-in-differences specification. Specifically, we estimate the following equation:

$$y^c_{mjkt} = \alpha_m + \theta\hat{\delta}_m \times post_{mk} + \omega_k + \nu_t + x_{mk}\eta + \varepsilon^c_{mjkt}.$$

This equation replaces the relative birth order dummies in our event study model with $post_{mk}$, an indicator for the births that occur after a mother's move. The key coefficient of interest is θ, the parameter on $\hat{\delta}_m \times post_{mk}$. Column (1) presents effects on birth weight; Column (2) presents effects on log birth weight; Column (3) presents effects on the likelihood of being low birth weight ($\mathbb{1}(<2500$ grams$)$); Column (4) presents effects on the likelihood of being very low birth weight ($\mathbb{1}(<1500$ grams$)$); Column (5) presents effects on gestational age at birth (in days); Column (6) presents effects on the likelihood of being premature ($\mathbb{1}(<37$ weeks$)$). Panels A, B and C present results for cross-Zip, cross-city, and cross-county moves, respectively. Standard errors are clustered at the relevant origin geography level.

Table A7: Share of Birth Weight Gaps Explained by Observable Maternal Characteristics

	(1) Avg. Mother's Education	(2) Avg. Mother's Age	(3) Share Non-white	(4) Share on Medi-Cal
Regression Coef.	-57.538	-5.145	-250.695	9.015
Diff. in Mom Characteristic	-0.046	-0.451	-0.137	-0.007
Diff. in Avg. Birth Weight	108.886	108.886	108.886	108.886
Share	0.024	0.021	0.315	-0.001

Notes: This table presents results for the difference in birth weight between Zips that can be explained by differences in specific maternal characteristics. Each column provides results where the focus is on a specific Zip-level mean of a maternal characteristic observed in birth records. We estimate the role of a given maternal characteristic by regressing family (mother) effects (i.e., $\overline{y}_j^m$) on a Zip-level mean. These estimates are reported in the first row. For a given maternal characteristic, the Zip-level differences between above and below median Zips are reported in the second row. The third row reports our estimate of the share explained by the given characteristic which is defined as the product of the first and second rows divided by the raw difference in birth weight between above and below median Zips. This approach follows Finkelstein, Gentzkow and Williams (2016).

Table A8: Changes in Maternal and Paternal Characteristics around a Move

	Main:	Place Index	Environment:		Indiv Index	Father Characteristics:				Insurance:
	Birth Weight	All	Ozone	PM 2.5	All	Present	Age	HS Degree	College Degree	Private
A: Cross-Zip moves										
Dest-Origin Diff. in BW (100's of grams) x Post	9.956***	29.956***	-0.012***	-0.474***	0.298***	0.001	0.008	0.003***	0.001	0.005***
	(1.174)	(1.207)	(0.003)	(0.041)	(0.098)	(0.001)	(0.006)	(0.001)	(0.001)	(0.001)
Mean Y	3338.460	3325.152	0.106	11.870	3324.553	0.951	30.941	0.775	0.282	0.566
Observations	7,374,648	7,056,305	7,301,958	7,275,257	6,985,562	7,374,928	6,854,519	6,600,378	6,600,378	7,355,501
B: Cross-city moves										
Dest-Origin Diff. in BW (100's of grams) x Post	13.711***	26.820***	-0.027***	-0.771***	0.278	-0.001	0.010	0.001	0.000	0.006**
	(1.341)	(2.063)	(0.010)	(0.122)	(0.278)	(0.002)	(0.009)	(0.001)	(0.001)	(0.003)
Mean Y	3338.624	3329.318	0.107	11.907	3327.785	0.949	30.811	0.769	0.273	0.556
Observations	7,765,245	7,430,280	7,682,818	7,655,963	7,358,353	7,765,537	7,203,233	6,940,298	6,940,298	7,745,268
C: Cross-county moves										
Dest-Origin Diff. in BW (100's of grams) x Post	26.266***	42.249***	-0.173***	-3.021***	-0.666	0.000	-0.004	-0.000	-0.005*	-0.016
	(3.646)	(4.209)	(0.043)	(0.609)	(0.539)	(0.003)	(0.026)	(0.002)	(0.003)	(0.013)
Mean Y	3340.112	3336.637	0.109	11.927	3334.419	0.947	30.682	0.766	0.265	0.548
Observations	8,243,738	7,884,994	8,149,614	8,121,513	7,818,519	8,244,043	7,640,202	7,367,225	7,367,225	8,222,662

Notes: This table presents estimates from our difference-in-differences specification. See the notes of Table A6 for the estimating equation and additional details about the interpretation of the estimates. Column (1) presents effects on birth weight; Column (2) presents effects on the place-based index; Columns (3) and (4) present effects on the level of ozone and PM 2.5; Column (5) presents effects on the maternal index; Column (6) presents effects on an indicator for whether a father is present at the birth; Columns (7) through (9) present effects on paternal age and education; and Column (10) presents effects on using private insurance for delivery. The place-based and maternal indices are measures of predicted infant birth weight using either place-based characteristics (including the measures of ozone and PM 2.5 in Columns 2 and 3) or maternal and household covariates (including the measures of father characteristics and insurance in Columns 6 through 9). Details on these measures and the underlying data sources are provided in the paper. Panels A, B and C present results for cross-Zip, cross-city, and cross-county moves, respectively. Standard errors are clustered at the relevant origin geography level.

Table A9: Impact of Moving to a Higher Quality Location with Additional Controls

	Baseline	Control for Maternal Index	Control for Maternal Index, 2007 on	Couple FE
A: Cross-Zip moves				
Dest-Origin Diff. in BW (100's of grams) x Post	9.956***	10.368***	9.366***	8.526***
	(1.174)	(1.202)	(2.350)	(1.279)
Mean Y	3338.460	3340.405	3288.649	3340.889
Observations	7,374,648	6,985,298	1,714,471	6,190,726
B: Cross-city moves				
Dest-Origin Diff. in BW (100's of grams) x Post	13.711***	14.238***	12.547***	12.045***
	(1.341)	(1.333)	(2.802)	(1.475)
Mean Y	3338.624	3340.549	3289.851	3341.305
Observations	7,765,245	7,358,080	1,788,804	6,443,583
C: Cross-county moves				
Dest-Origin Diff. in BW (100's of grams) x Post	26.266***	26.819***	33.013***	22.887***
	(3.646)	(3.804)	(5.683)	(4.134)
Mean Y	3340.112	3342.036	3292.399	3342.762
Observations	8,243,738	7,818,235	1,881,831	6,744,769

Notes: This table presents results from our difference-in-differences specification across different sets of controls. See the notes of Table A6 for the estimating equation and additional details about the interpretation of the estimates. Column 1 presents our baseline estimate. Column 2 presents the results when we include controls for the inputs to the maternal index, which are listed in the notes of Figure 7. Column 3 presents the results when we include controls for the inputs to the extended maternal index, which are listed in the notes of Appendix Figure A14. Column 4 presents the results when we include couple fixed effects. Panels A, B and C present results for cross-Zip, cross-city, and cross-county moves, respectively. Standard errors are clustered at the relevant origin geography level.

Table A10: Impact of Moving Using "Shocks" to Location Quality

	Baseline	IV	Military moves
A: Cross-Zip moves			
Dest-Origin Diff. in BW (100's of grams) x Post	9.956***	14.051***	21.051***
	(1.174)	(2.322)	(4.748)
Mean Y	3338.460	3358.911	3357.485
Observations	7,374,648	3,483,616	232,796
B: Cross-city moves			
Dest-Origin Diff. in BW (100's of grams) x Post	13.711***	13.648***	27.525***
	(1.341)	(2.935)	(6.234)
Mean Y	3338.624	3363.670	3356.790
Observations	7,765,245	2,762,277	248,688
C: Cross-county moves			
Dest-Origin Diff. in BW (100's of grams) x Post	26.266***	20.506***	49.925***
	(3.646)	(7.392)	(15.088)
Mean Y	3340.112	3371.524	3359.462
Observations	8,243,738	1,216,239	272,984

Notes: This table presents results from our difference-in-differences specification using alternative research designs. See the notes of Table A6 for the baseline estimating equation and additional details about the interpretation of the estimates. Column 1 presents our baseline estimate. Column 2 presents the results when we instrument for the change in mother m's location quality $\hat{\delta}_m$. The instrument is based on computing the leave-out average of $\hat{\delta}_m$ using all mover mothers from a given origin zip while excluding the focal mother. The first stage coefficients and standard errors are 0.988 (s.e. = 0.004), 1.00 (s.e. = 0.0007), and 1.00 (s.e. = 0.003) for the estimates two periods before a move, one period after a move, and two periods after a move, respectively. Column 3 presents the results when we limit the sample to individuals who move between zip codes with a high concentration of military personnel. Panels A, B and C present results for cross-Zip, cross-city, and cross-county moves, respectively. Standard errors are clustered at the relevant origin geography level.

Table A11: Tests for Differences in Fertility by Destination-Origin Difference in Average Birth Weight

	Controls added:	
	None	Mom Dems.
A: Cross-Zip moves		
Dest-Origin Diff. in BW (100's of grams)	-0.015**	-0.002
	(0.007)	(0.004)
Mean Y	2.611	2.612
Observations	1,485,272	1,448,611
B: Cross-city moves		
Dest-Origin Diff. in BW (100's of grams)	-0.016	0.006
	(0.020)	(0.009)
Mean Y	2.638	2.640
Observations	1,153,880	1,126,430
C: Cross-county moves		
Dest-Origin Diff. in BW (100's of grams)	-0.033	0.013
	(0.039)	(0.018)
Mean Y	2.718	2.720
Observations	490,071	478,267

Notes: This table presents results from mother-level regressions where the outcome is the total completed fertility, and the key regressor of interest is the destination-origin difference in average child birth weight ($\hat{\delta}_m$) for each mother. Column 1 includes no additional covariates; while Column 2 includes fixed effects for mother race, whether a mother has a college education, and the age of a mother's first birth. Panels A, B and C present results for cross-Zip, cross-city, and cross-county moves, respectively. Robust standard errors are shown in parenthesis.

Table A12: Estimated Impacts of Moving and Decomposition Results, Robustness to Including Multiple Movers

	(1)	(2)	(3)	(4)
	Main Estimation Sample		Including Multiple Movers	
	Top vs. Bottom 50%	Top vs. Bottom 25%	Top vs. Bottom 50%	Top vs. Bottom 25%
Panel A. Effects of Moving				
Estimated impact (grams)	18.440	25.821	19.234	27.242
Panel B. Decomposition:				
Overall difference (grams)	108.886	179.448	108.886	179.448
Share due to place effects	0.169	0.144	0.177	0.152
Share due to family (mother)	0.831	0.856	0.823	0.848

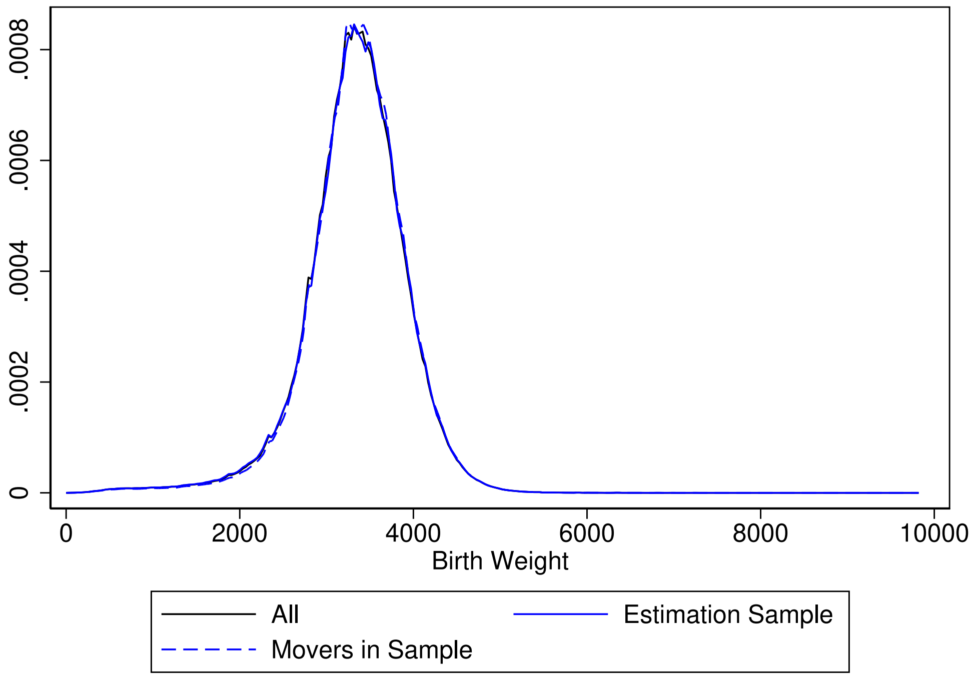
Notes: This table presents estimates of (i) the impact of moving to more advantaged areas on birth weight (Panel A) and (ii) additive decomposition results of the role of place- and family-based factors in explaining the gap in birth weight across locations (Panel B). All results are based on cross-Zip moves. Columns 1 and 2 reproduce our estimate for all mothers from Table 2. Columns 3 and 4 report results from a sample that includes multiple-move mothers. All results are based on estimates of Equation 1, where the dependent variable is birth weight (in grams). The first row in Panel A reports the estimated impact of moving from a below- to an above-median birth weight Zip code (i.e., $\gamma_R - \gamma_{R'}$). The first row of Panel B presents the overall difference in average birth weight between below- and above-median birth weight Zip codes (i.e., $\overline{y}_R - \overline{y}_{R'}$). The second and third rows of Panel B report the shares of the overall difference attributable to place and family (mother) characteristics.

Table A13: Estimated Impacts of Moving and Decomposition Results (Locations with 100 Movers or More)

	(1)	(2)	(3)	(4)	(5)
		Zip		City	County
	Top vs. Bottom 50%	Top vs. Bottom 25%	Top vs. Bottom 10%	Top vs. Bottom 50%	Top vs. Bottom 50%
Panel A. Effects of Moving:					
Estimated Impact (grams)	13.622	19.472	26.837	22.367	33.030
	(1.785)	(2.927)	(4.890)	(2.665)	(4.750)
Panel B. Decomposition:					
Overall difference (grams)	92.313	149.679	209.180	83.910	66.490
Share due to place	0.148	0.130	0.128	0.267	0.497
	(0.019)	(0.020)	(0.023)	(0.032)	(0.071)
Share due to family (mother)	0.852	0.870	0.872	0.733	0.503

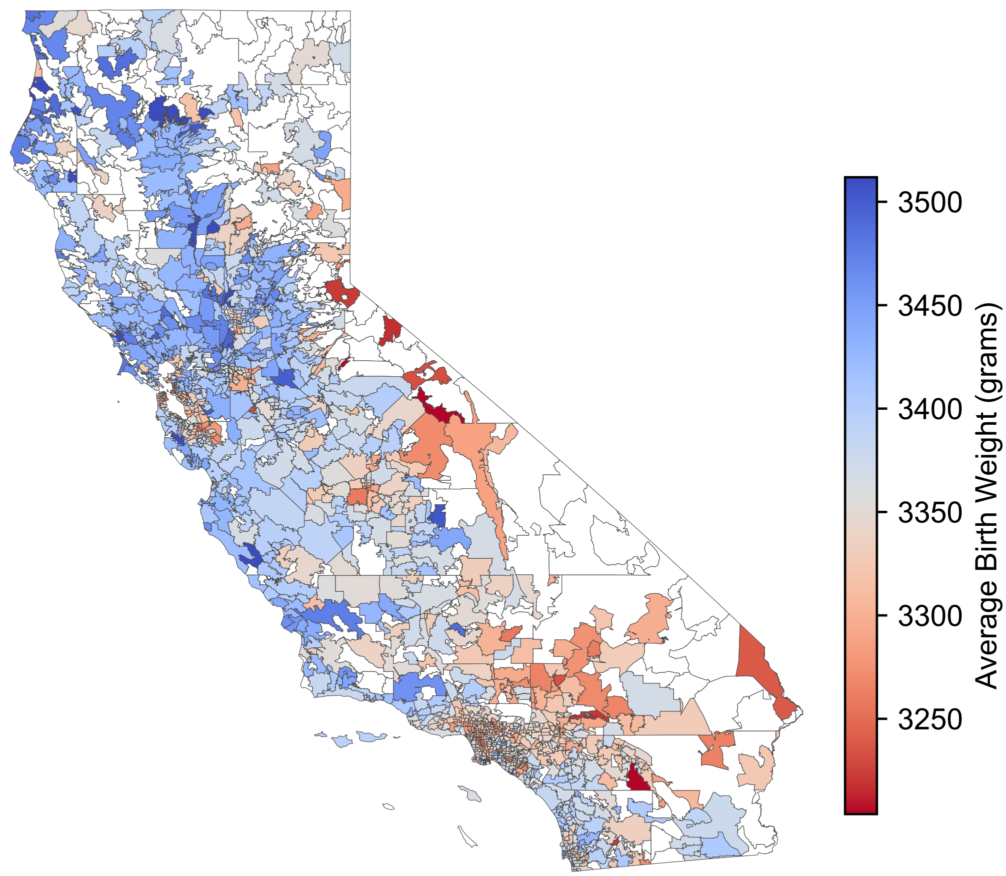
Notes: This table presents estimates of (i) the impact of moving to more advantaged areas on birth weight (Panel A) and (ii) additive decomposition results of the role of place- and family-based factors in explaining the gap in birth weight across locations (Panel B). All results are based on estimates of Equation 1, where the dependent variable is birth weight (in grams). Columns 1-3 report results based on analysis of place effects at the Zip level, while Columns 4 and 5 provide results for place effects at the city and county levels, respectively. The samples for these analyses are restricted to locations with at least 100 movers. This differs from our requirement of having at least 25 movers used for our main sample. The analysis is based on comparisons across sets of areas R and R'. For example, we define R and R' as the top-50% and bottom-50% of Zip codes in terms of birth weight in Column 1. The first row in Panel A reports the estimated difference due to place effects (i.e., $\gamma_R - \gamma_{R'}$). The first row of Panel B presents the overall difference in average birth weight between two areas (i.e., $\overline{y}_R - \overline{y}_{R'}$). The second and third rows of Panel B report the shares of the overall difference attributable to place and family (mother) characteristics. Standard errors (in parentheses) are calculated using a mother-level bootstrap approach that has 50 repetitions.

Figure A1: Distribution of Birth Weight for all Mothers and Estimation Sample



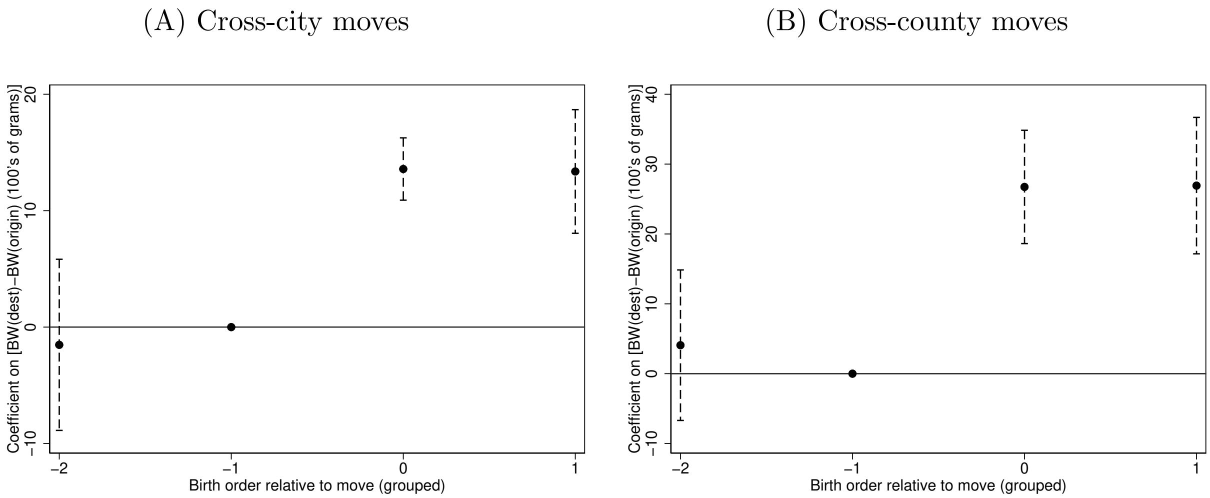
Notes: This figure shows the kernel densities for the birth weight of children born to all mothers in California (from 1989 to 2017), all mothers in our estimation sample, and mover mothers in our estimation sample.

Figure A2: Average Birth Weight by Zip Code



Notes: This figure provides a map of average birth weight (in grams) at the Zip code level. The legend indicates the level of birth weight with dark blue and dark red colors indicating places with the highest and lowest birth weight, respectively. White areas are Zip codes where there are no mothers that meet our baseline sample criteria (always being in California; always being in a zip code with at least 25 movers; and either never moving or moving once across births). Note that average birth weight is winsorized at the 1 percent level to limit the influence of outliers.

Figure A3: Event Study of Birth Weight for Cross-City and Cross-County Moves

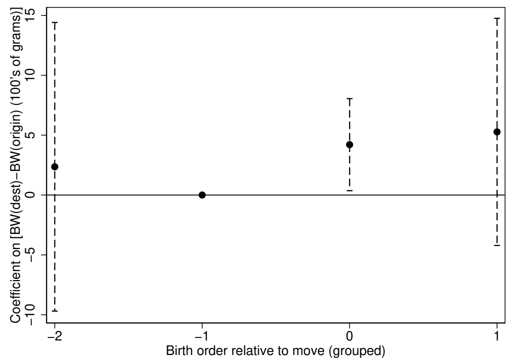


Notes: This figure reports the coefficient estimates of $\hat{\theta}_{r(m,k)}$ from Equation 5 for cross-city moves (Panel A) and cross-county moves (Panel B). The coefficient for the birth that occurs immediately before the move is normalized to 0. The x-axis indicates the birth order relative to the mother's move, $r(m, k)$. Each dot is a point estimate and represents the impact on birth weight measured in grams. The dashed vertical lines surrounding each dot are estimates of the 95-percent confidence interval. To reduce noise in the figure, the coefficient shown at "-2" and "-1" on the x-axis includes the second and third birth prior to a move (i.e., $r(m, k) = -2$ and $r(m, k) = -3$) and the coefficient shown at "1" on the x-axis includes the second and third birth after a move (i.e., $r(m, k) = 1$ and $r(m, k) = 2$). Standard errors are clustered at the relevant origin geography (i.e., city or county) level.

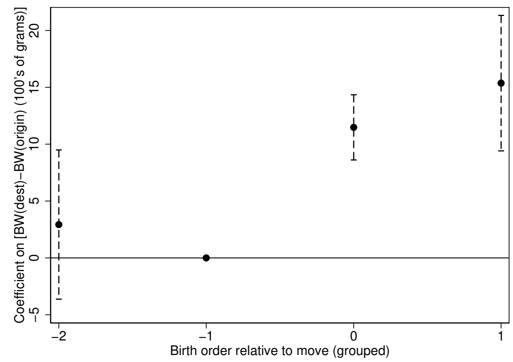
Figure A4: Event Study of Birth Weight for College- and Non-College-Educated Mothers

(A) Cross-Zip moves

(i) College-Educated Mothers

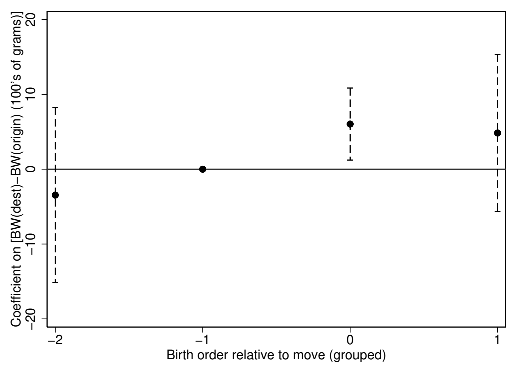


(ii) Non-College-Educated Mothers

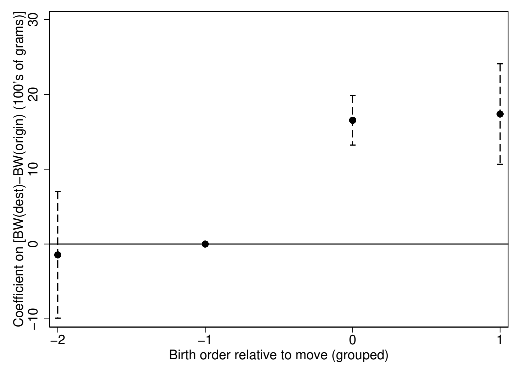


(B) Cross-city moves

(i) College-Educated Mothers

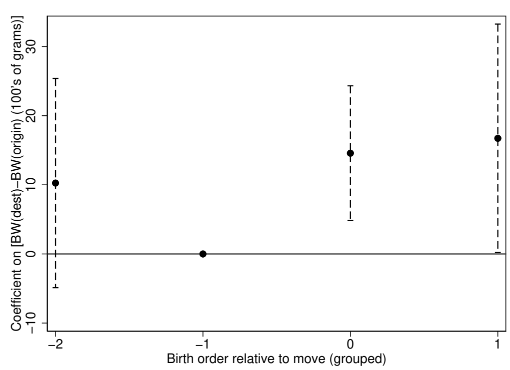


(ii) Non-College-Educated Mothers

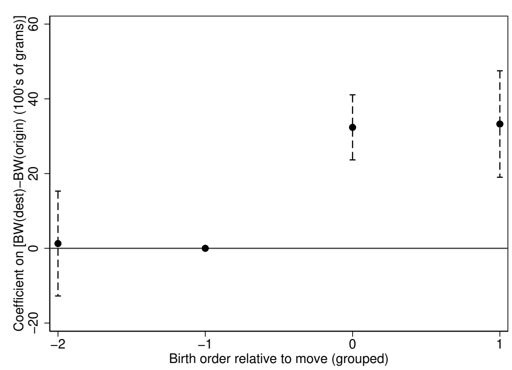


(B) Cross-county moves

(i) College-Educated Mothers

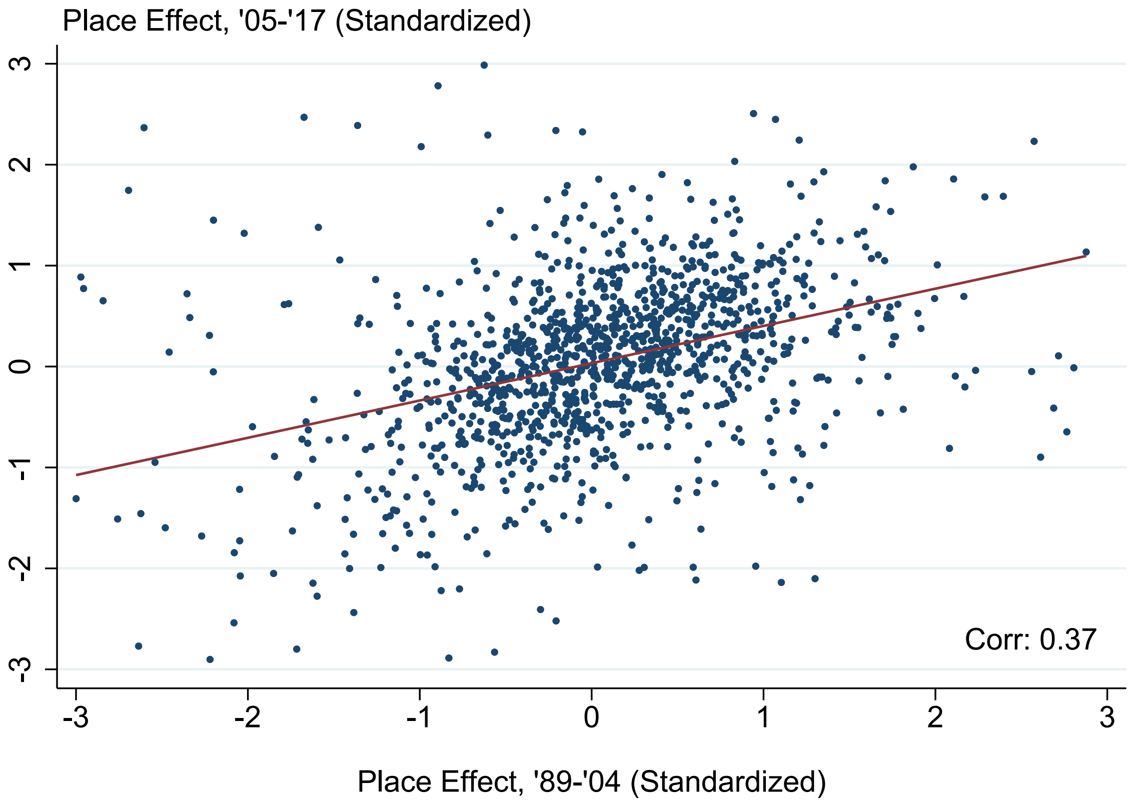


(ii) Non-College-Educated Mothers



Notes: This figure reports the coefficient estimates of $\hat{\theta}_{r(m,k)}$ from Equation 5 where the sample is either college-educated mothers (Panel A) or non-college-educated mothers (Panel B). See the notes for Figure 3 for additional details on the interpretation of the estimates. Standard errors are clustered at the relevant origin geography level.

Figure A5: Scatterplot of Period Specific Place Effects

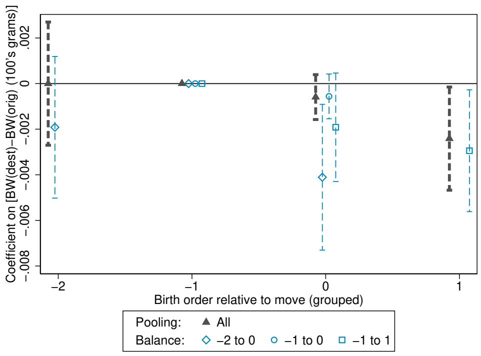


Notes: This figure is a scatterplot of our estimated Zip-level place effect estimates for moves that occur in the first (1989-2004) and second (2005-2017) halves of the birth records available for our analysis.

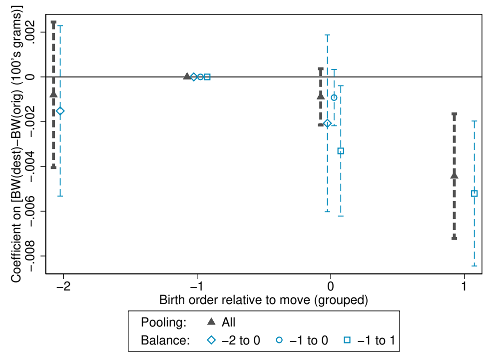
Figure A6: Event Study Analysis of Low Birth Weight Around a Move

(A) Cross-Zip moves

(i) All Mothers

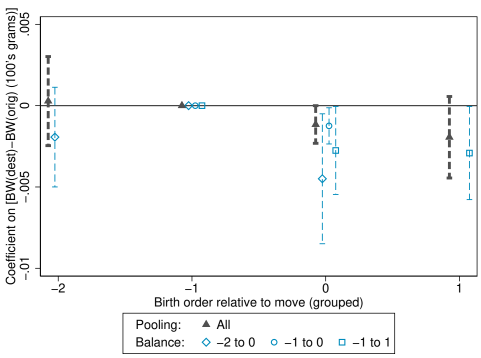


(ii) Non-College-Educated Mothers

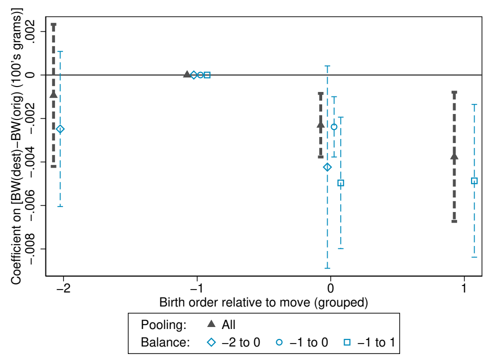


(B) Cross-city moves

(i) All Mothers

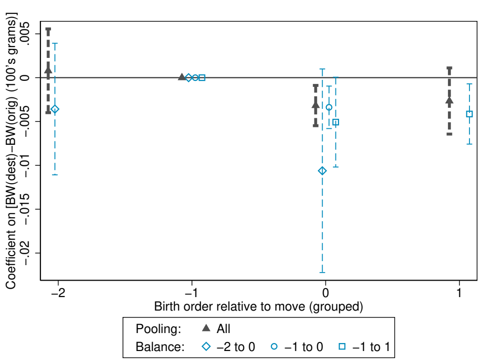


(ii) Non-College-Educated Mothers

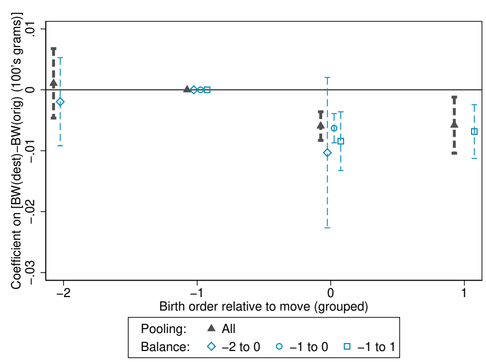


(C) Cross-county moves

(i) All Mothers



(ii) Non-College-Educated Mothers

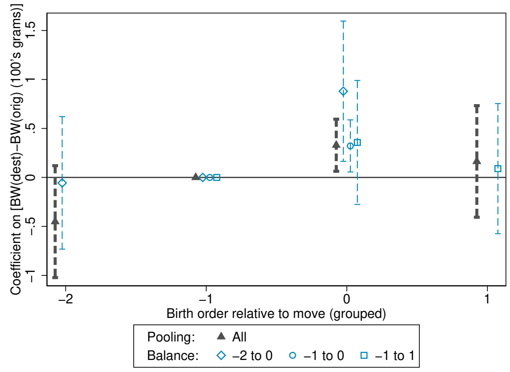


Notes: This figure reports the coefficient estimates of $\hat{\theta}_{r(m,k)}$ from Equation 5 in which the outcome is an indicator for being low birth weight and the sample is either all mothers (subpanel i) or non-college-educated mothers (subpanel ii). We present results separately for cross-Zip moves (Panel A), cross-city moves (Panel B) and cross-county moves (Panel C). For further details on the samples and specification used for this analysis, see the notes to Figure 3. Standard errors are clustered at the relevant origin geography level.

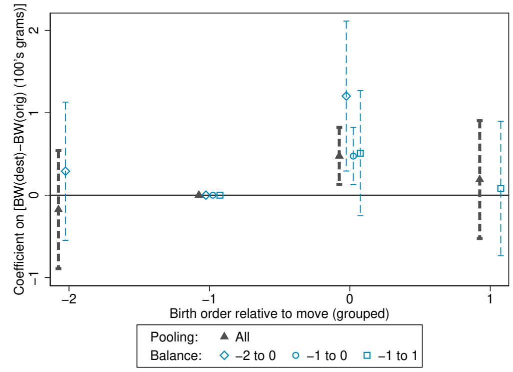
Figure A7: Event Study Analysis of Gestational Age around a Move

(A) Cross-Zip moves

(i) All Mothers

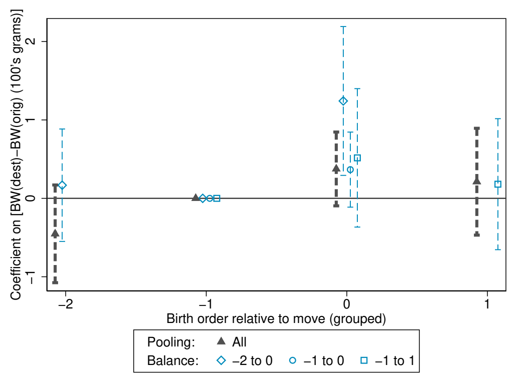


(ii) Non-College-Educated Mothers

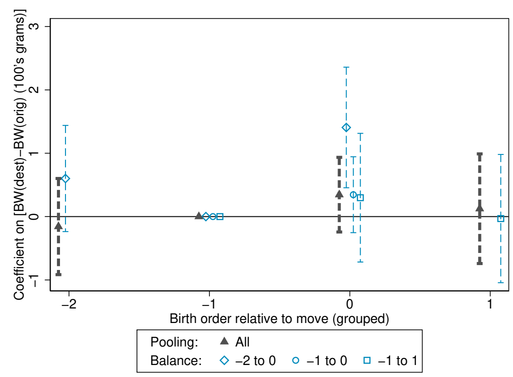


(B) Cross-city moves

(i) All Mothers

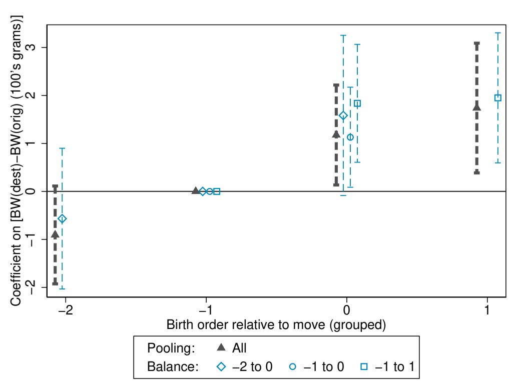


(ii) Non-College-Educated Mothers

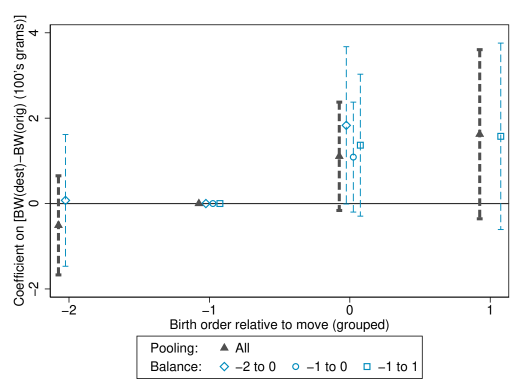


(C) Cross-county moves

(i) All Mothers



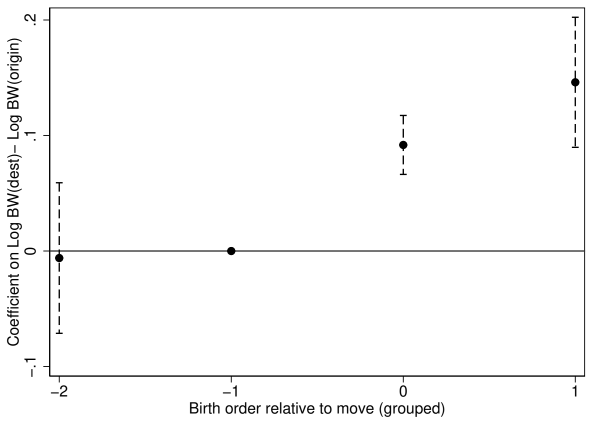
(ii) Non-College-Educated Mothers



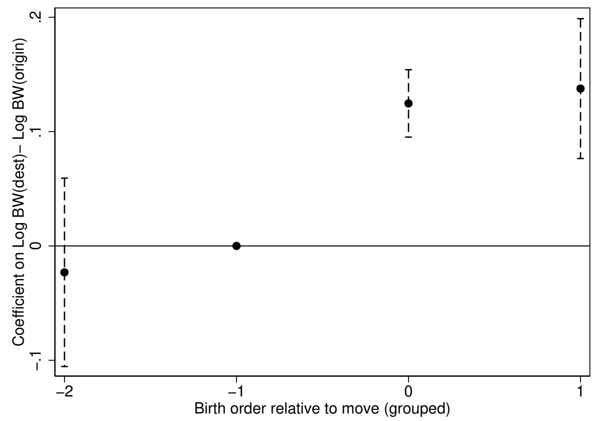
Notes: This figure reports the coefficient estimates of $\hat{\theta}_{r(m,k)}$ from Equation 5 in which the outcome is days of gestation and the sample is either all mothers (subpanel i) or non-college-educated mothers (subpanel ii). Panels A, B and C present results for cross-Zip, cross-city, and cross-county moves, respectively. For further details on the samples and specification used for this analysis, see the notes to Figure 3. Standard errors are clustered at the relevant origin geography level.

Figure A8: Event Study of Log Birth Weight

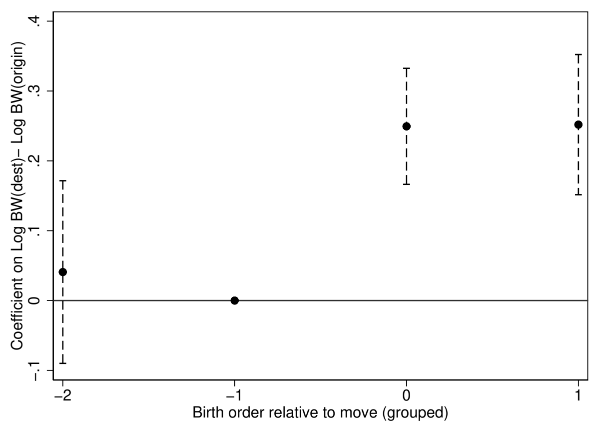
(A) Cross-Zip moves



(B) Cross-city moves

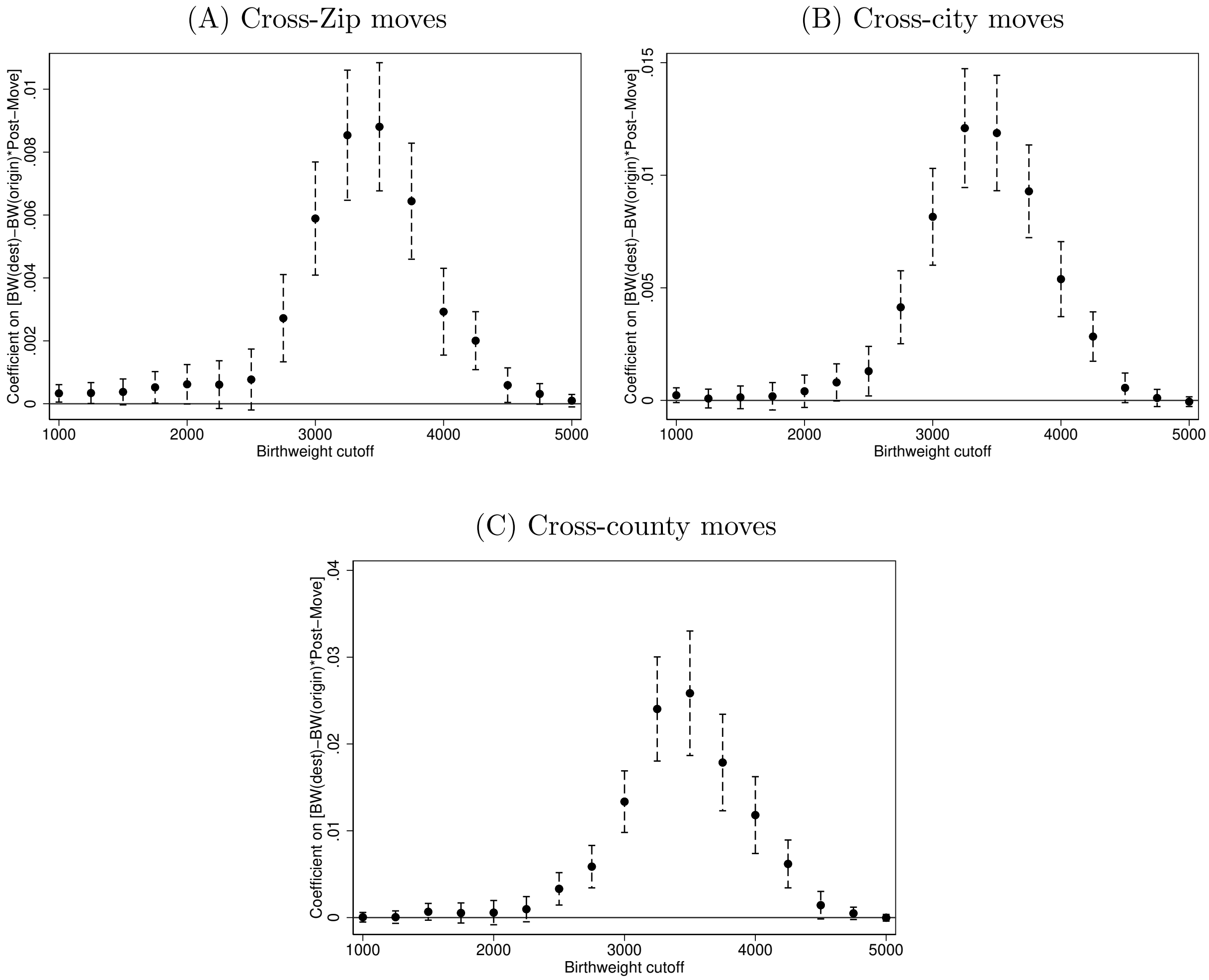


(c) Cross-county moves



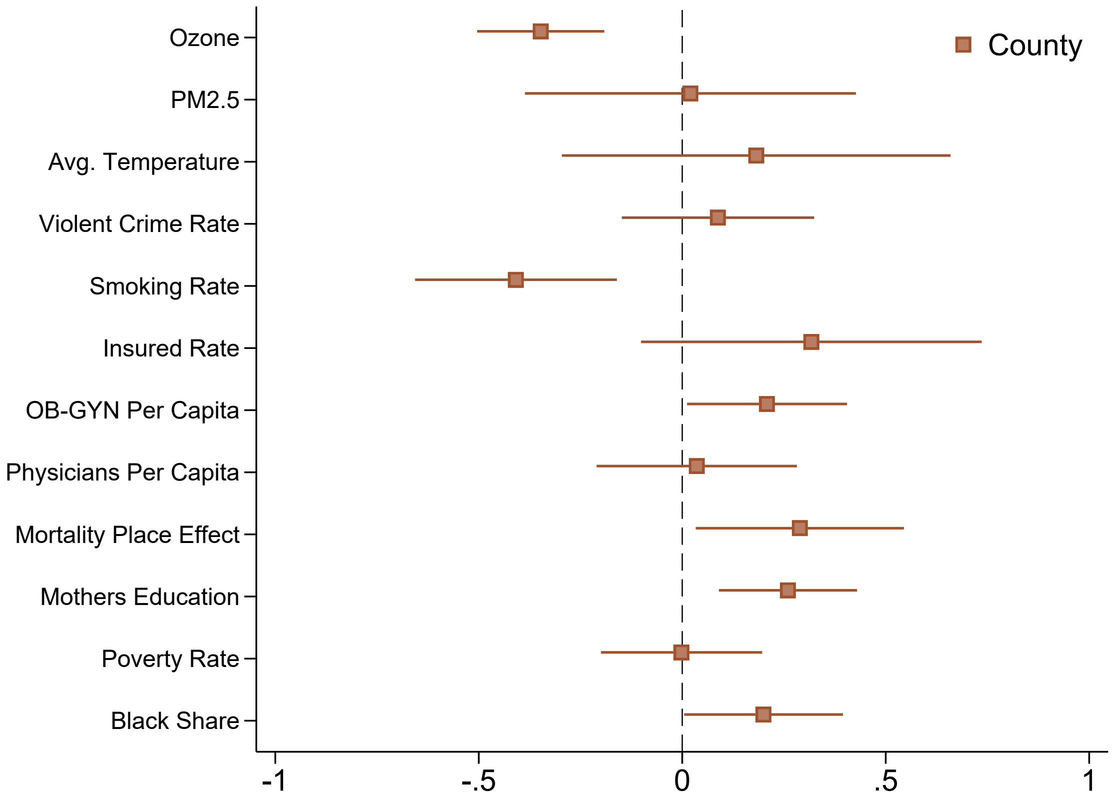
Notes: This figure reports the coefficient estimates of $\hat{\theta}_{r(m,k)}$ from Equation 5 in which the dependent variable is log birth weight. For further details on the samples and specification used for this analysis, see the notes to Figure 3. Panels A, B, and C present results for cross-Zip, cross-city, and cross-county moves, respectively. Standard errors are clustered at the relevant origin geography level.

Figure A9: Effect of Moving to a Higher Quality Location on the Birth Weight Distribution



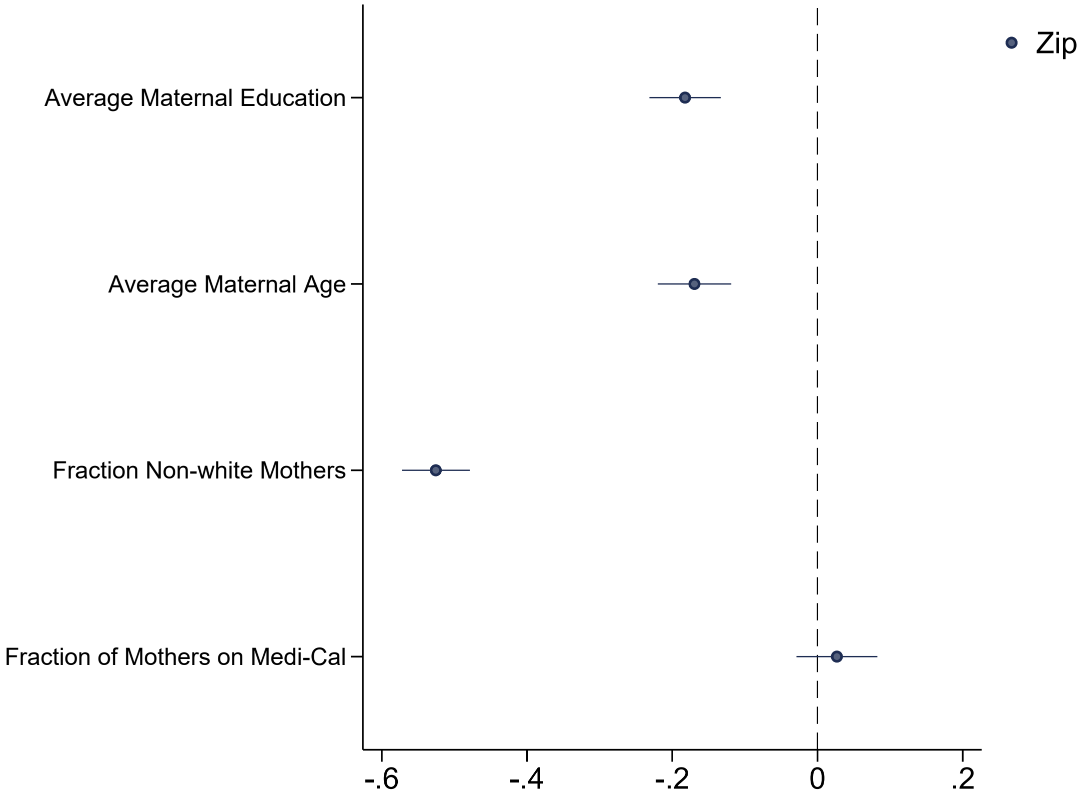
Notes: This figure presents estimates from our difference-in-differences specification. See the notes of Table A6 for the estimating equation and additional details for the interpretation of the estimates. In each regression the dependent variable is an indicator for having a birth weight greater than a given value "X" (where the value of X used in each regression is reported on the x-axis in the figure). Panels A, B and C present results for cross-Zip, cross-city, and cross-county moves, respectively. Standard errors are clustered at the relevant origin geography level.

Figure A10: Correlates of Spatial Variation in County Place Effects on Birth Weight



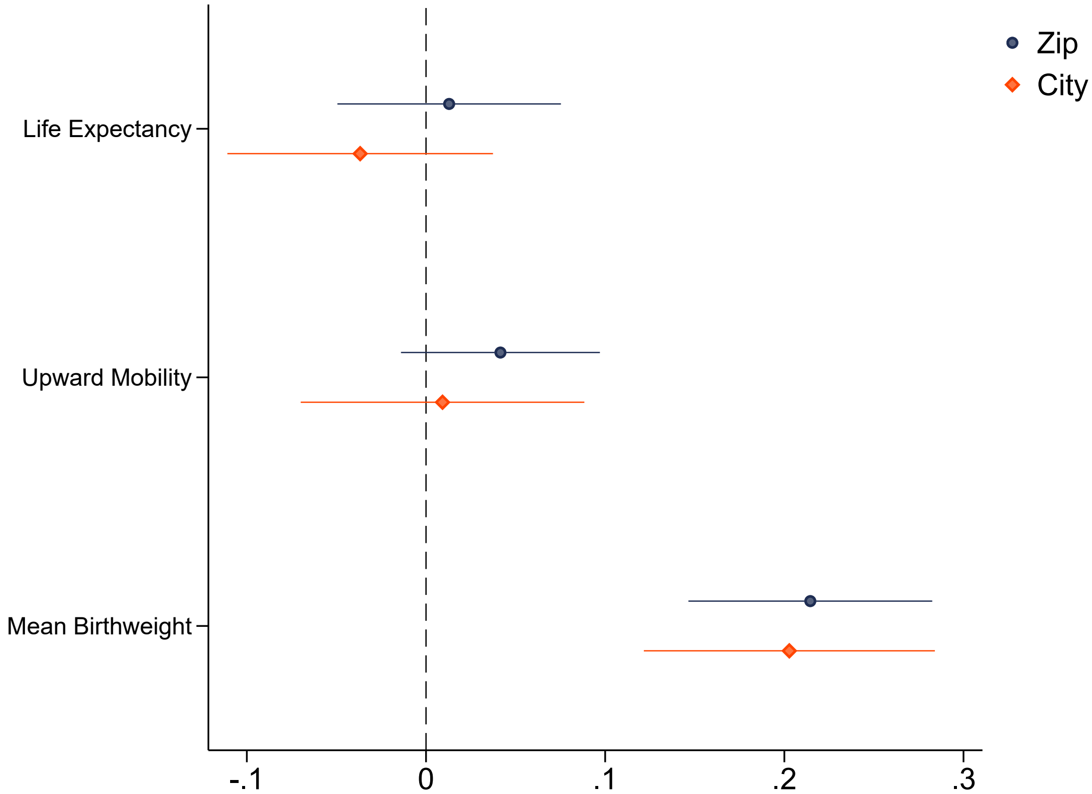
Notes: This figure shows the correlation between estimates of place effects based on Equation 1 and place characteristics. For each characteristic listed on the y-axis, the dots report the point estimate of the correlation and the horizontal lines show the 95-percent confidence intervals based on robust standard errors. Details on each measure and the underlying data sources are provided in Appendix B.

Figure A11: Correlates of Spatial Variation in Family (Mother) Effects



Notes: This figure shows the correlation of estimates of family (mother) effects (i.e., $\overline{y}_j^m$) based on Equation 1 and Zip-level means of specific maternal characteristics observed in the birth records. For each characteristic listed on the y-axis, the dots report the point estimate of the correlation and the horizontal lines show the 95-percent confidence intervals based on robust standard errors. Details on each measure and the underlying data sources are provided in Appendix B.

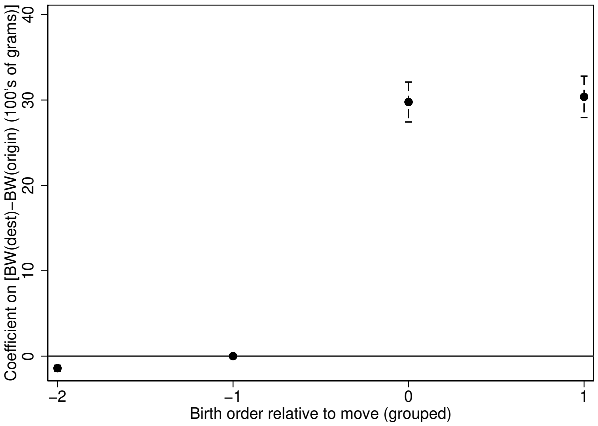
Figure A12: Additional Correlates of Spatial Variation in Zip and City-Level Place Effects on Birth Weight



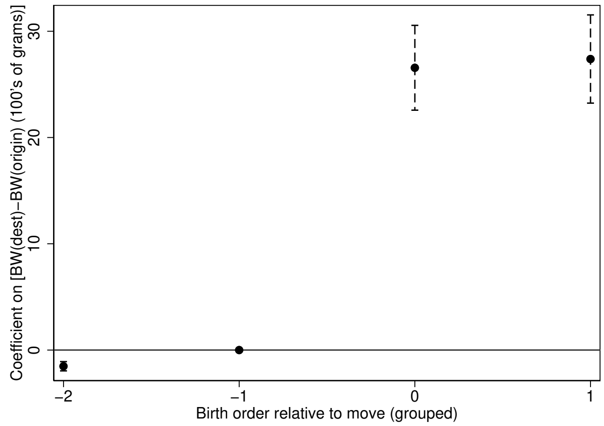
Notes: This figure shows the correlation of estimates of place effects based on Equation 1 and place characteristics. For each characteristic listed on the y-axis, the markers report the point estimate of the correlation and the horizontal lines show the 95-percent confidence intervals based on robust standard errors. The dot and diamond markers indicate whether the correlation is based on place effect estimates at the Zip or city levels, respectively. Details on each measure and the underlying data sources are provided in Appendix B.

Figure A13: Predicted Infant Birth Weight (Place-based Index) Around a Move

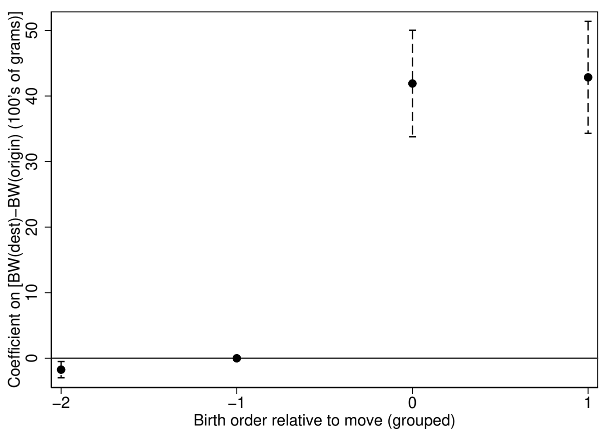
(A) Cross-Zip moves



(B) Cross-city moves

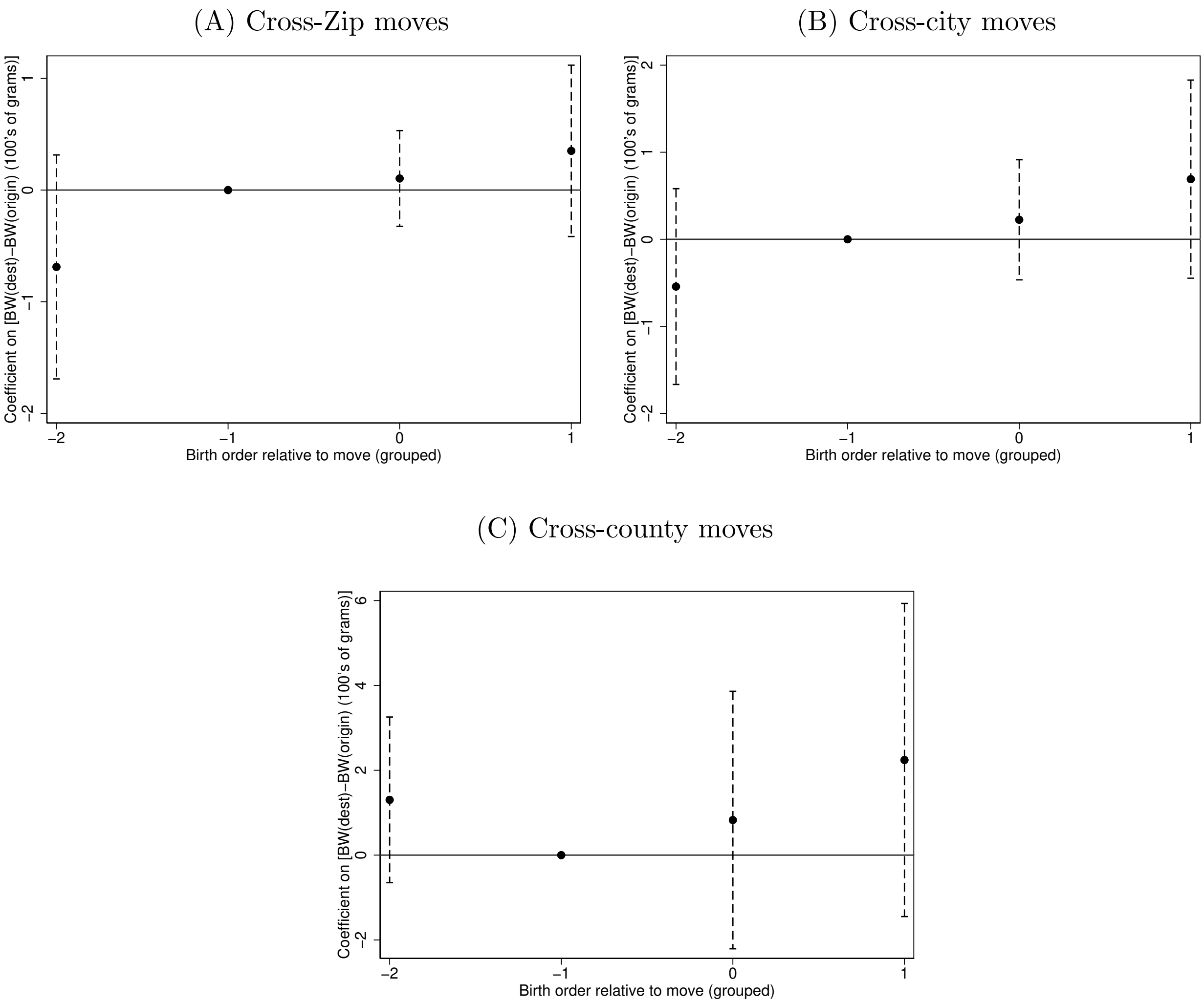


(C) Cross-county moves



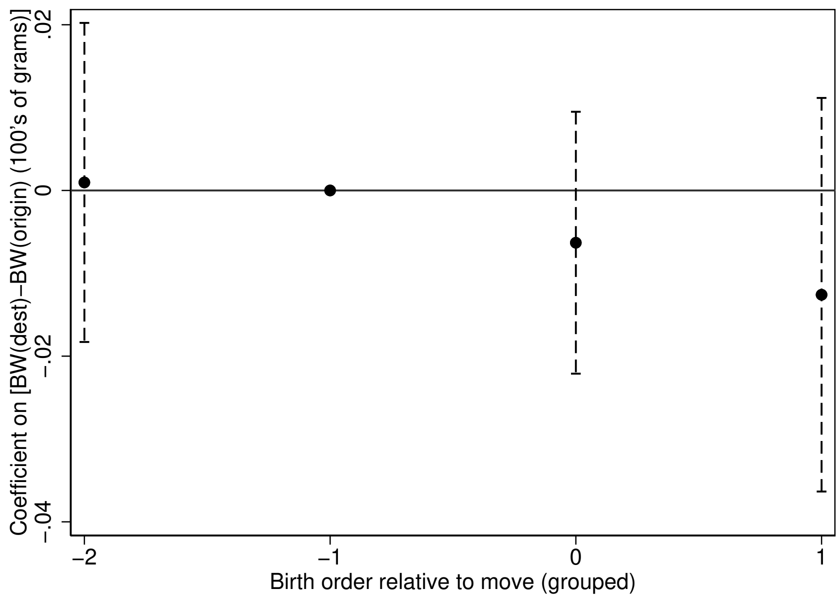
Notes: This figure shows coefficients from our event study model (Equation 5) in which the dependent variable is *predicted* infant birth weight using place-based characteristics. We generate the predicted "place-based index" as the fitted value from a regression of birth weight on the local poverty share, share Black, share of mothers with a college degree; OB/GYNs per capita; physicians per capita, insured rate, violent arrests per capita; $PM_{2.5}$, ozone, and average temperature. Panels A, B and C present results for cross-Zip, cross-city, and cross-county moves, respectively. Details on each place-based measure and the underlying data sources are provided in Appendix B. See the notes for Figure 3 for additional details about the interpretation of the estimates. Standard errors are clustered at the relevant origin geography level.

Figure A14: Maternal Index Around a Move Using Additional Covariates (2007 onward)



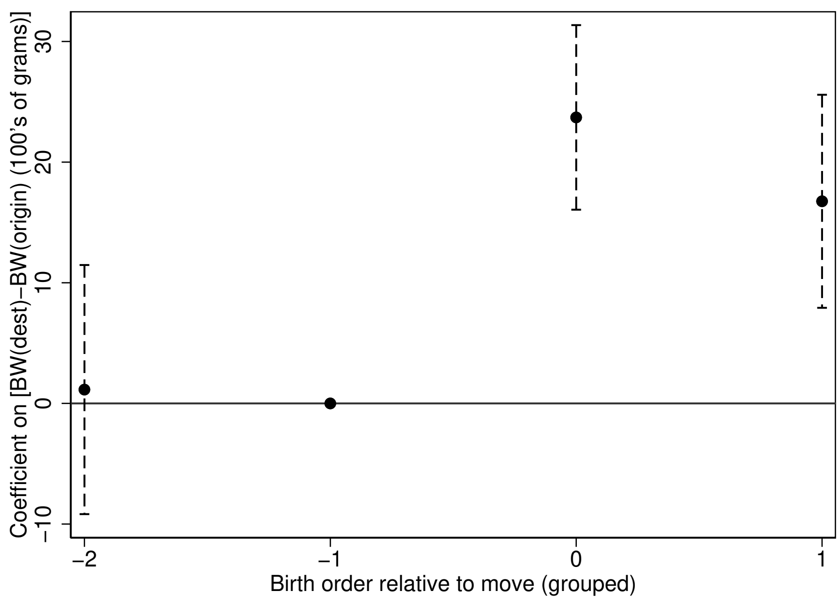
Notes: This figure shows coefficients from our event study model (Equation 5) when we use *predicted* infant birth weight as an outcome. We generate predicted birth weight using the baseline prediction model for the maternal index (described in the notes of Figure 7), augmented with additional covariates that include indicators for whether the mother worked in the last year, her expected income based on her reported occupation and the average income for women by occupation calculated from the 2007–2017 ACS, whether she received any WIC for the pregnancy, and the average number of cigarettes smoked during pregnancy. See the notes for Figure 3 for additional details about the interpretation of the estimates. Panels A, B and C present results for cross-Zip, cross-city, and cross-county moves, respectively. Standard errors are clustered at the relevant origin geography level.

Figure A15: Event Study of WIC Participation using Moves Across Counties



Notes: This figure reports the coefficient estimates of $\hat{\theta}_{r(m,k)}$ from Equation 5 where the dependent variable is an indicator for whether a mother received WIC during her pregnancy. We define moves as a change in a mother's county of residence in this analysis. The sample includes births from 2007-2017, for which information about maternal WIC participation is available. See the notes for Figure 3 for additional details about the interpretation of the estimates. Standard errors are clustered at the origin county level.

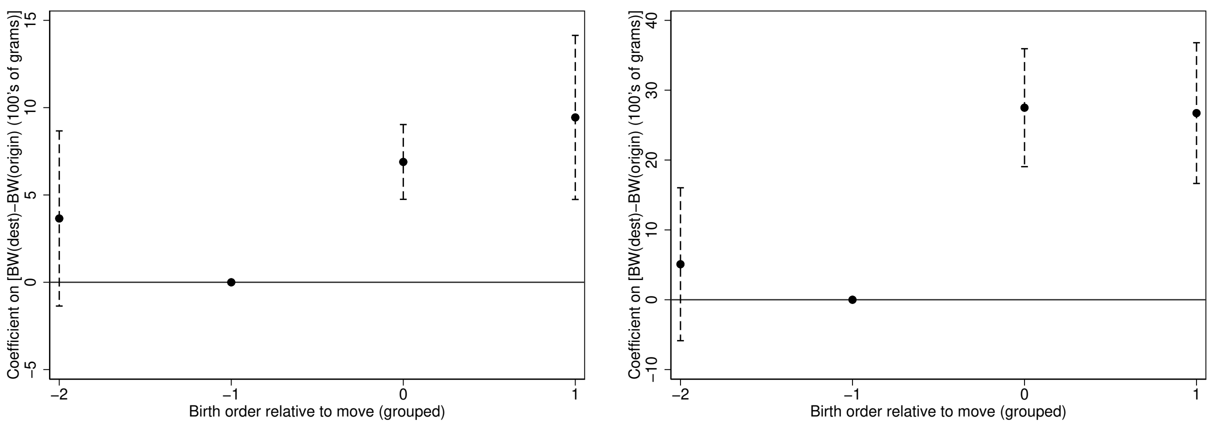
Figure A16: Event Study Analysis of Birth Weight Using an Instrument for Changes in Location Quality (Zip-level Moves)



Notes: This figure shows coefficients from our event study model (Equation 5) in which we instrument for the change in mother m's location quality $\hat{\delta}_m$. The instrument is based on computing the leave-out average of $\hat{\delta}_m$ using all mover mothers from a given origin Zip while excluding the focal mother. The first stage coefficients and standard errors are 0.988 (s.e. = 0.004), 1.00 (s.e. = 0.0007), and 1.00 (s.e. = 0.003) for the estimates two periods before a move, one period after a move, and two periods after a move, respectively. See the notes for Figure 3 for additional details about the interpretation of the estimates. Standard errors are clustered at the origin Zip code level.

Figure A17: Effect of Moving to a Higher Quality Location, Defining Quality Using Non-Movers

(A) Cross-Zip (B) Cross-county



Notes: This figure reports the coefficient estimates of $\hat{\theta}_{r(m,k)}$ from Equation 5 in which the dependent variable is birth weight and we calculate $\hat{\delta}_m$ using only non-movers. See the notes for Figure 3 for additional details about the interpretation of the estimates. Panels A and B present results for cross-Zip and cross-county moves, respectively. Standard errors are clustered at the relevant origin geography level.

B Additional Data Description

This appendix provides details on the data sources that we use to construct measures of place characteristics that we use to analyze the correlates of the causal place effects in Section 6 of the main text. The sources provide measures at the the Zip, county, or commuting zone geographic levels. We aggregate characteristics measured at more granular measures up to the respective place effect geography used for the correlate analysis.

1. **Pollution:** We rely on Zip-level measures of particular matter ($PM_{2.5}$) and ozone from the CalEnviroScreen (version 1.1) database. The CalEnviroScreen database was created by the California Office of Environmental and Health Hazard Assessment (OEHHA). The $PM_{2.5}$ measure is the annual mean concentration (average of quarterly means) over the three year period 2007-2009. The ozone measure is the portion of the daily maximum eight-hour ozone concentration over the federal eight-hour standard (0.075 ppm), averaged over the three year period 2007-2009.

2. **Criminal Justice:** We rely on county-level measures of arrests for violent crime per 100,000 persons. Arrest data are available from the California Department of Justice (DOJ) Criminal Justice Statistics Center (CJSC). We compute the average annual number of arrests for violent crime for the period 1990-2015. We use population statistics from the U.S. Census Bureau to calculate the number of arrests per 100,000 persons.

3. **Demographics and Economic Characteristics:** We rely on Zip-level measures of the poverty share and the share of Black residents from the 2000 Decennial Census. The Zip-level data was downloaded from the IPUMS National Historical Geographic Information System (NHGIS) (Manson et al., 2021). In addition, we calculate the Zip-level share of mothers with a college degree using the birth records from California (1989-2017) for all of the mothers in our estimation sample. Finally, we use data from the Opportunity Atlas Chetty et al. (2020) to construct measures of upward mobility at the Zip, city and county levels.

4. **Health:** We rely on county-level measures of the per capita number of physicians and obstetrician-gynecologists (OB-GYNs) from the 2019 Area Health Resource Files (AHRF) produced by the Health Sources and Services Administration. In addition, we use county-level measures of smoking rates and health insurance from the County Health Rankings 2010 National Data. Finally, we use measures of life expectancy and estimated place effects on elderly mortality at the commuting zone level from Finkelstein, Gentzkow and Williams (2021).

5. **Temperature:** We rely on Zip-level temperature data for California used in Heutel, Miller and Molitor (2021) (Heutel, Miller and Molitor, 2020).

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