Disparities in rooftop photovoltaics deployment in the United States by race and ethnicity
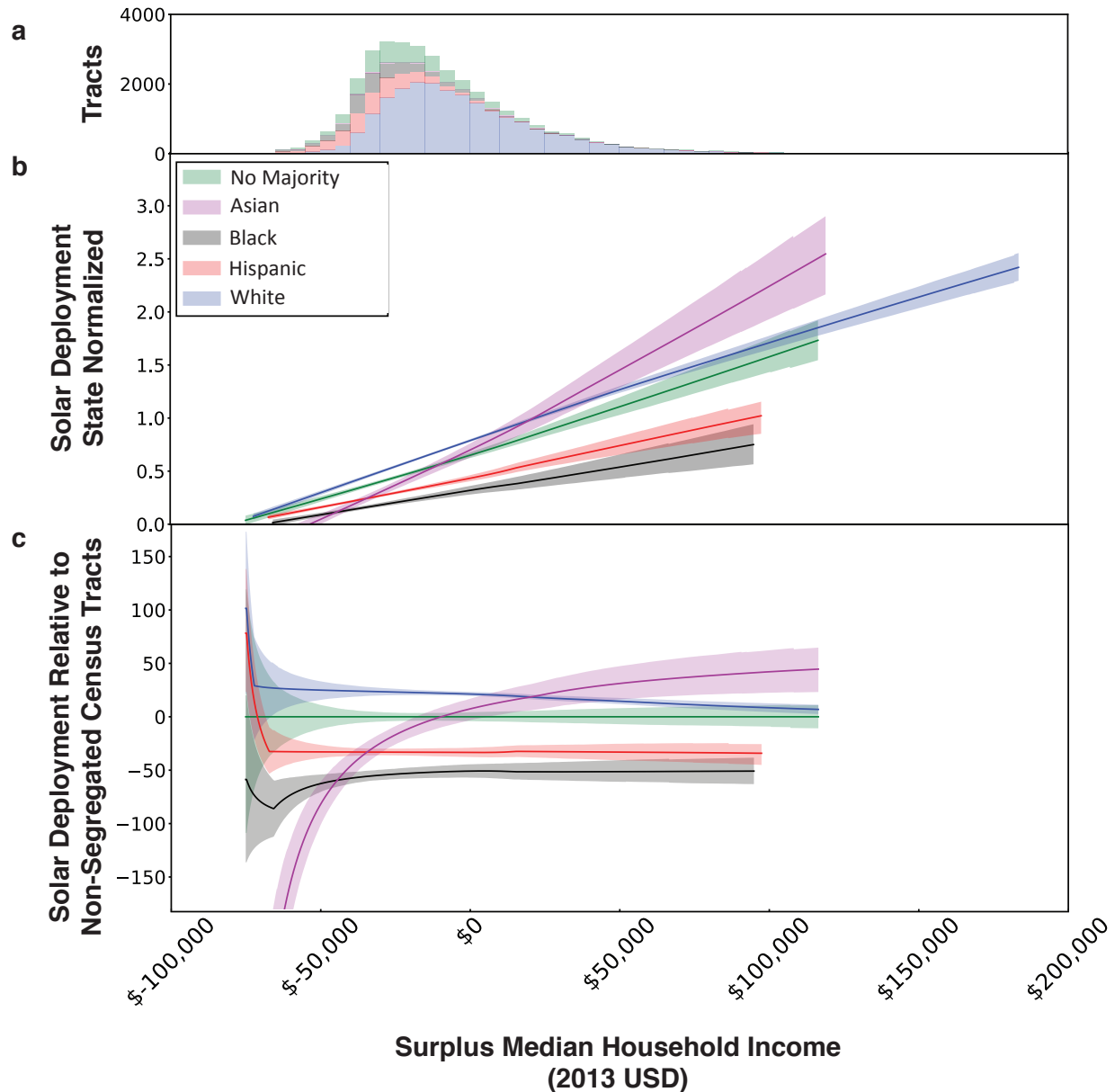
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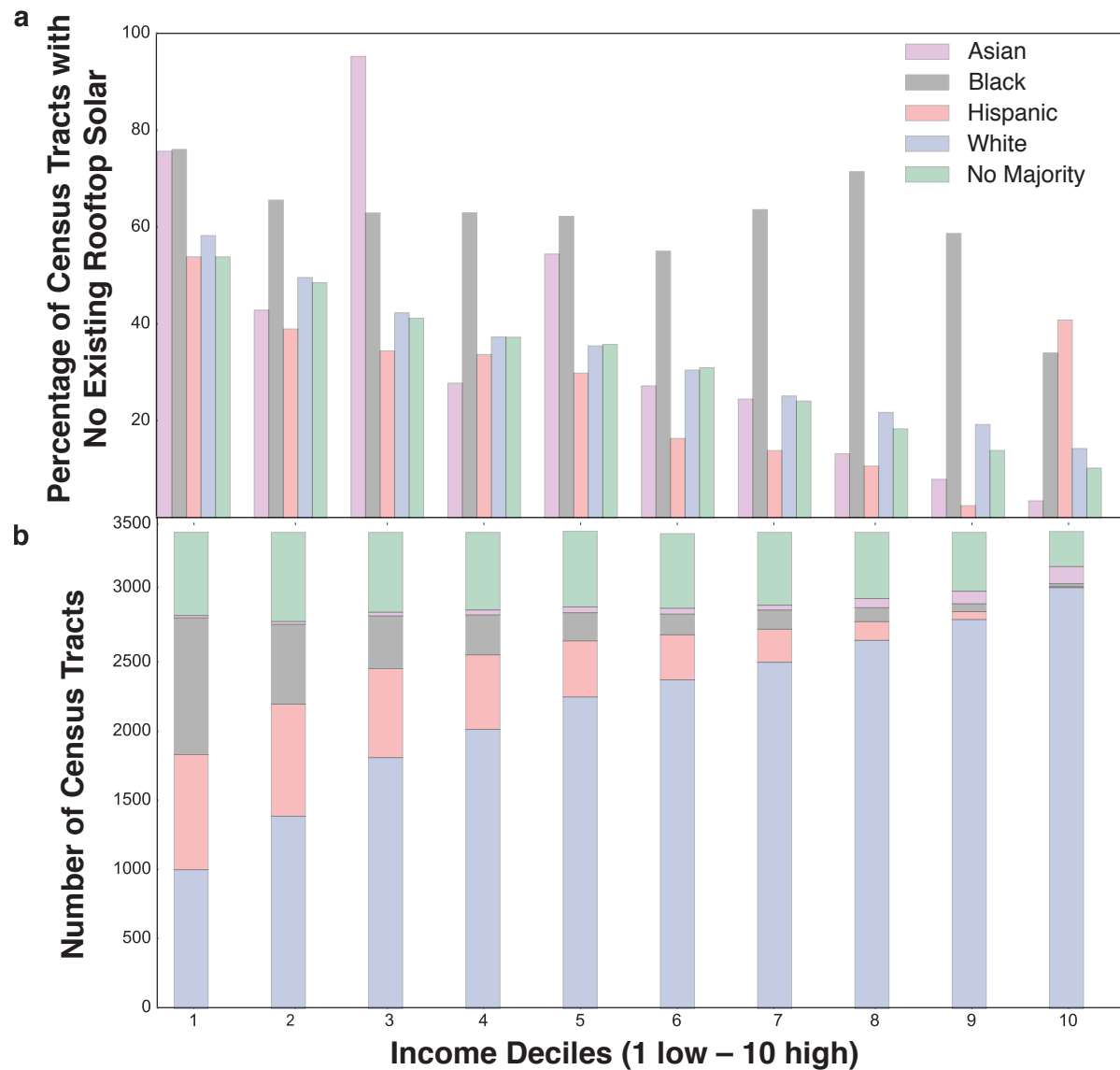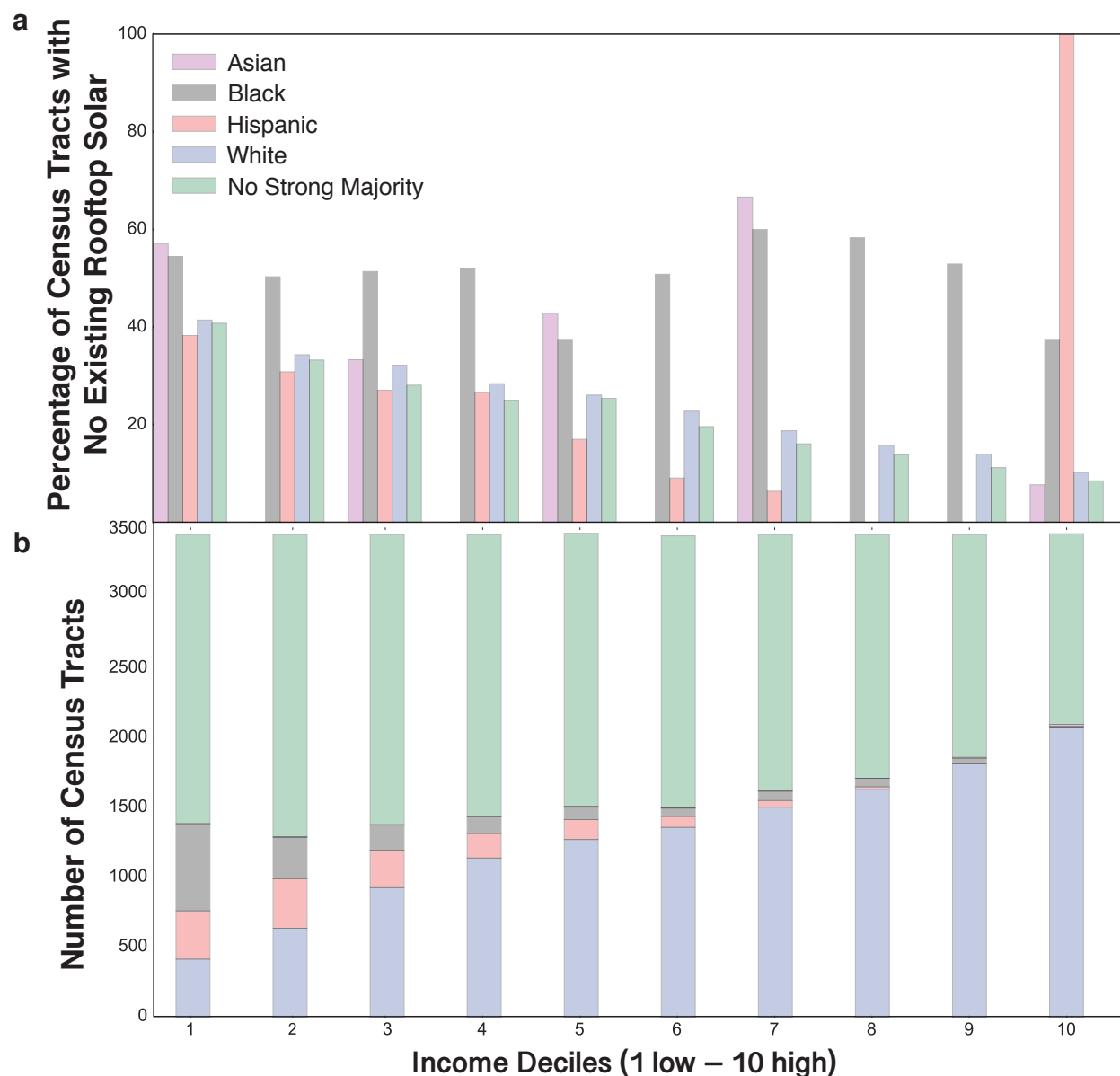
Supplementary Figures
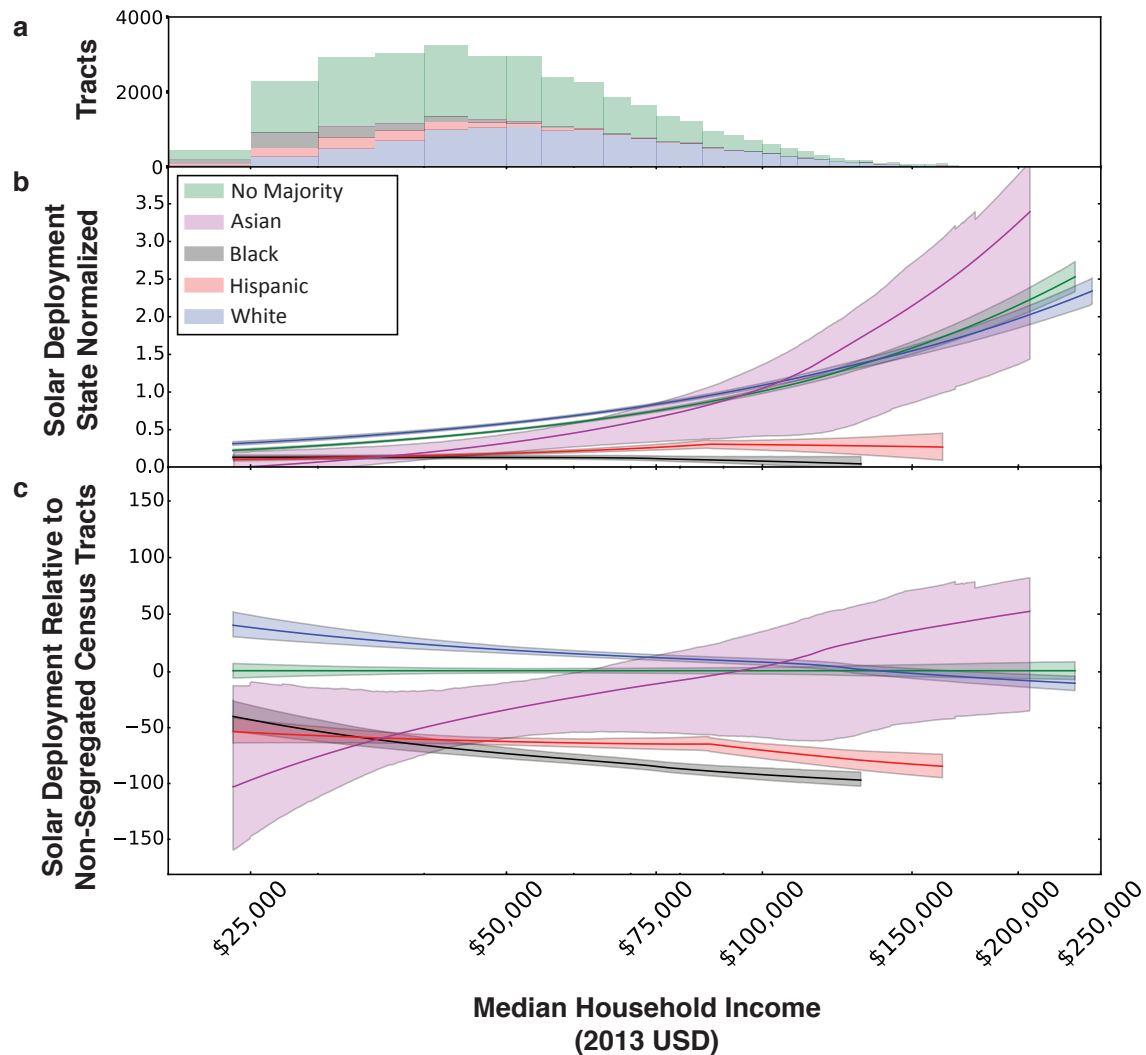
Supplementary Figure 1. Rooftop PV installations relative to available rooftop PV potential normalized by state as a function of median household income for Strong Majority census tracts where 75% or more of the population self-identified as a single race or ethnicity in (b) absolute values, and (c) normalized relative to the rooftop PV adoption of No Strong Majority census tracts (<75% of the population self-identifies as a single race). Each color represents a strong majority race in the census tract. Dark continuous lines represent the results of the LOWESS method applied to all data in each racial and ethnic strong majority group. Lighter envelope around dark continuous lines represent the 90% CI based on 1,000 bootstrap replications of each racial and ethnic strong majority group. The histogram (a) shows the distribution of census tracts analyzed at intervals of $5,000 colored by strong majority race.
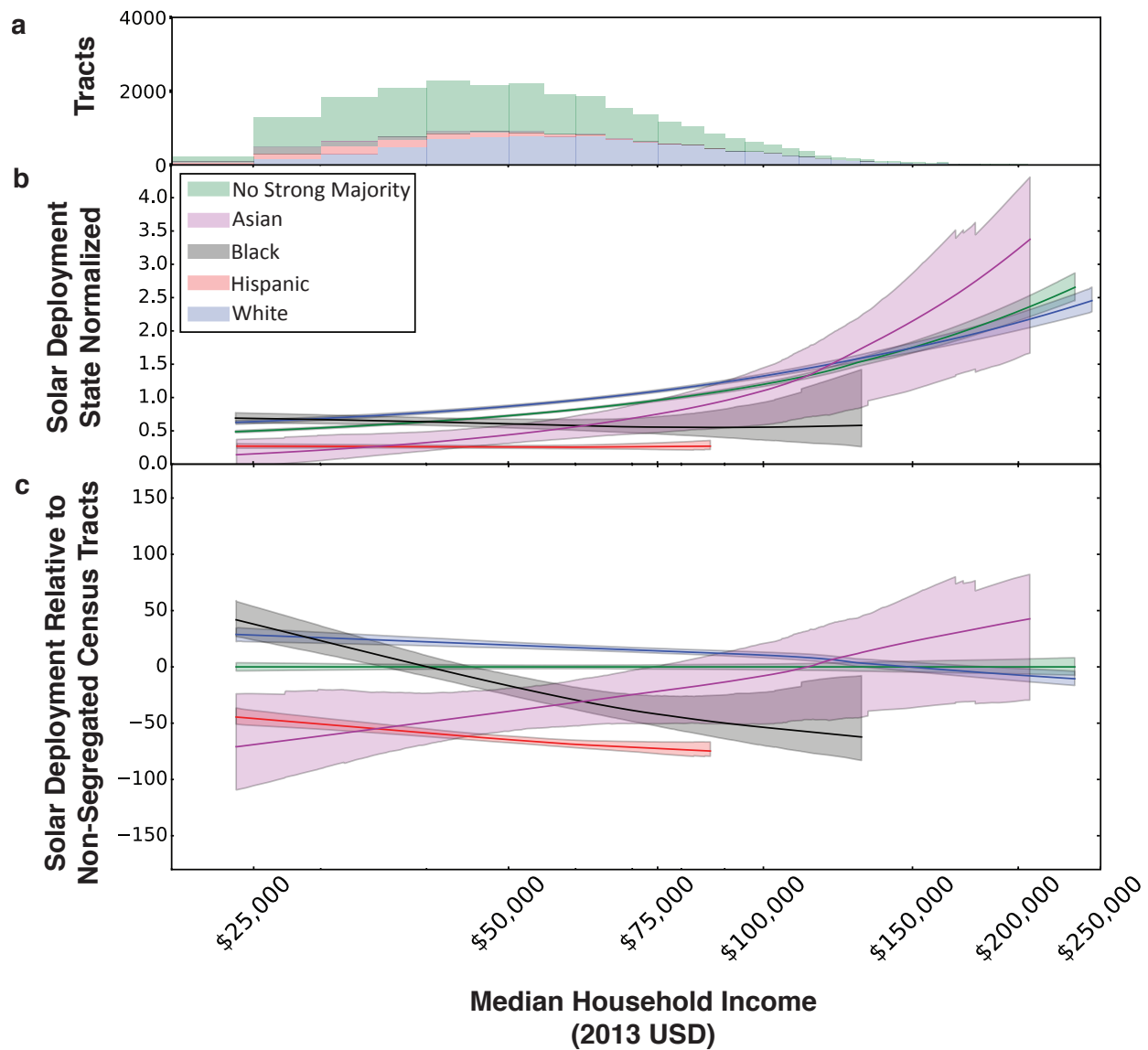
Supplementary Figure 2. Rooftop PV installations relative to available rooftop PV potential normalized by state as a function of surplus median household income for Majority census tracts where 50% or more of the population self-identified as a single race or ethnicity in (b) absolute values, and (c) normalized relative to the rooftop PV adoption of No Majority census tracts (<50% of the population self-identifies as a single race). Each color represents a majority race in the census tract. Dark continuous lines represent the results of the LOWESS method applied to all data in each racial and ethnic majority group. Lighter envelope around dark continuous lines represent the 90% CI based on 1,000 bootstrap replications of each racial and ethnic majority group. The histogram (a) shows the distribution of census tracts analyzed at intervals of $5,000 colored by majority race.

Supplementary Figure 3. (a) Percentage of census tracts without a single building using rooftop PV by majority race and income decile. (b) Number of census tracts in the analysis in each income decile by majority race. Income deciles are defined based on median household incomes for all census tracts included in the analysis. Each color represents a majority race in the census tract, where 50% or more of the population self-identifies as a single race or ethnicity.

Supplementary Figure 4. (a) Percentage of census tracts without a single building using rooftop PV by strong majority race and income decile. (b) Number of census tracts in the analysis in each income decile by strong majority race. Income deciles are defined based on median household incomes for all census tracts included in the analysis. Each color represents a strong majority race in the census tract, where 75% or more of the population self-identifies as a single race or ethnicity.

Supplementary Figure 5. Rooftop PV installations relative to available rooftop PV potential normalized by state as a function of median household income and limited to Strong Majority census tracts (where 75% or more of the population self-identified as a single race or ethnicity) with existing rooftop PV in (b) absolute values, and (c) normalized relative to the rooftop PV adoption of No Strong Majority census tracts (<75% of the population self-identifies as a single race). Each color represents a strong majority race in the census tract. Dark continuous lines represent the results of the LOWESS method applied to all data in each racial and ethnic strong majority group. Lighter envelope around dark continuous lines represent the 90% CI based on 1,000 bootstrap replications of each racial and ethnic strong majority group. The histogram (a) shows the distribution of census tracts analyzed at intervals of $5,000 colored by strong majority race.

Supplementary Tables

Supplementary Table 1. Optimized Smoothing Parameters for LOWESS Method of State-Normalized Solar Deployment and Median Household Income

Majority Race	Percent of the population that self-identifies as the majority race	Elimination of Census Tracts with No Existing Rooftop PV	Smoothing Parameter, f
Asian	50%	No	0.80
		Yes	0.80
	75%	No	0.79
		Yes	0.23
Black	50%	No	0.20
		Yes	0.39
	75%	No	0.20
		Yes	0.49
Hispanic	50%	No	0.80
		Yes	0.25
	75%	No	0.74
		Yes	0.27
White	50%	No	0.20
		Yes	0.20
	75%	No	0.20
		Yes	0.27
No Majority	50%	No	0.80
		Yes	0.80
	75%	No	0.80
		Yes	0.80

Supplementary Table 2. Optimized Smoothing Parameters for LOWESS Method of State-Normalized Solar Deployment and Home Ownership

Majority Race	Smoothing Parameter, f
Asian	0.80
Black	0.70
Hispanic	0.36
White	0.80
No Majority	0.74

Supplementary Table 3. Optimized Smoothing Parameters for LOWESS Method of State-Normalized Solar Deployment and Surplus Income

Majority Race	Smoothing Parameter, f
Asian	0.80
Black	0.23
Hispanic	0.80
White	0.73
No Majority	0.80