Income and Demographic Trends of US Residential Rooftop Solar Adopters

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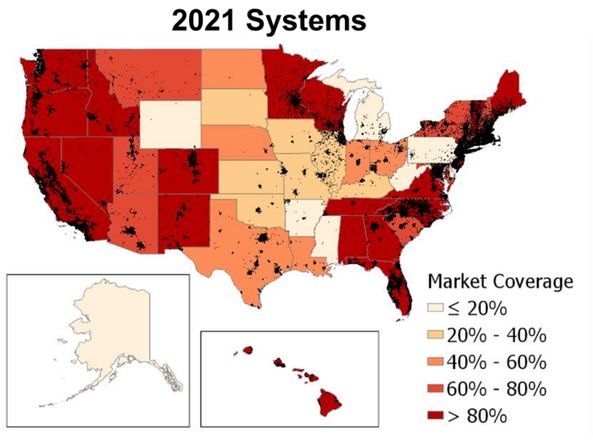
Data Sources and Geographic Coverage



Data

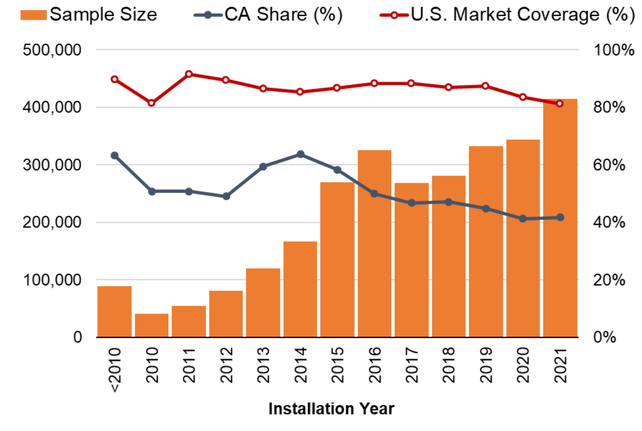
- Rooftop solar address and system data are collected from LBNL's **Tracking the Sun** (**1.9 million** systems) as a primary dataset and supplemented with **BuildZoom** and **Ohm Analytics** for an additional **0.9 million** systems
- Income and socioeconomic data at a household level from **Experian ConsumerView**
- Population demographics from **U.S. Census** and **Bureau of Labor Statistics**

Coverage

- Our sample consists of **2.8 million** residential rooftop solar systems, covering roughly **86%** of the entire U.S. market through 2021, and **81%** of systems installed in 2021 alone
- Market coverage state-by-state varies widely, but is over 40% in most states
- California represents over half of the total sample and 42% of the 2021 sample, consistent with the makeup of the overall residential rooftop solar market

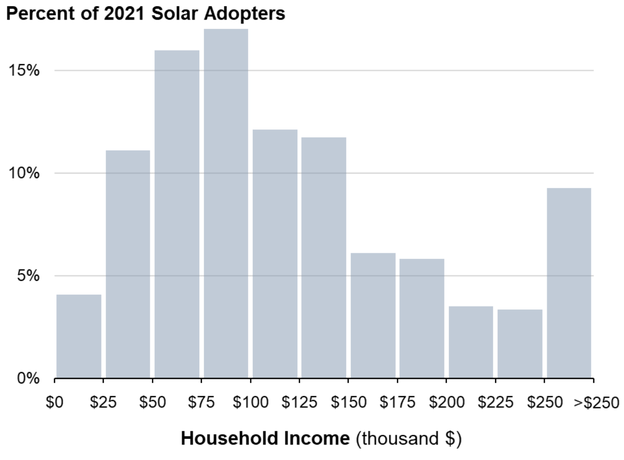
Methods

- Focus on national and state-level trends and on more recent years (2010-2021)
- Solar adopter income and demographic data reflect *current* values as of Q2 '22 rather than time of adoption. So, data may not be representative of the household at time of adoption (especially in the case of a move)

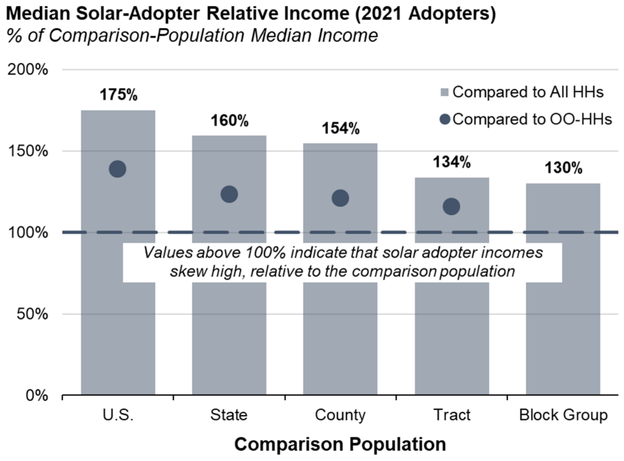


Results: Solar Adopter Income Trends

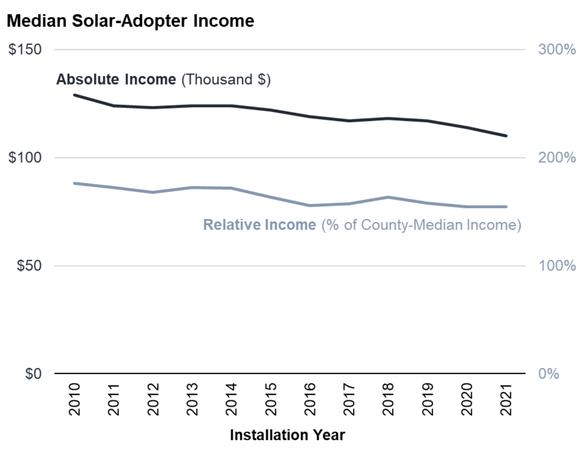
Rooftop solar adopters span all incomes…



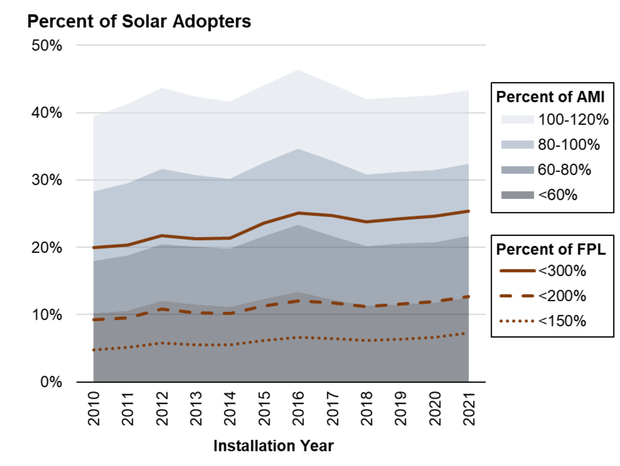
…though skew high compared to the broader population



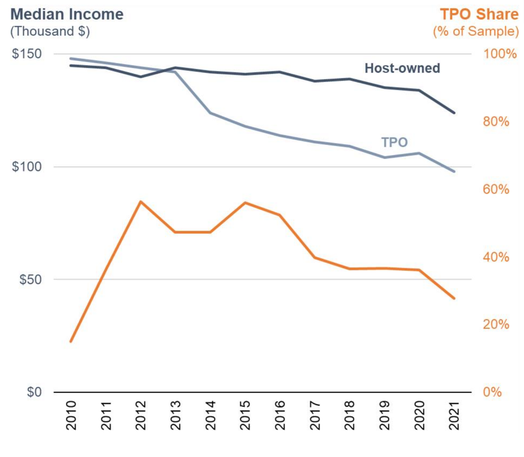
Even so, this skew is diminishing over time…



…and migrating into low and moderate income populations.

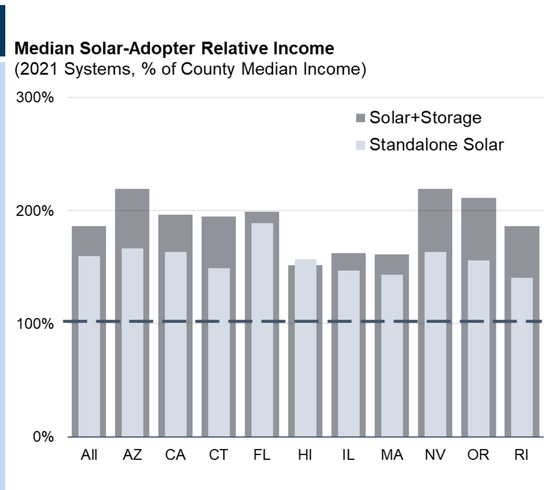


Results: Income Trends by Segment



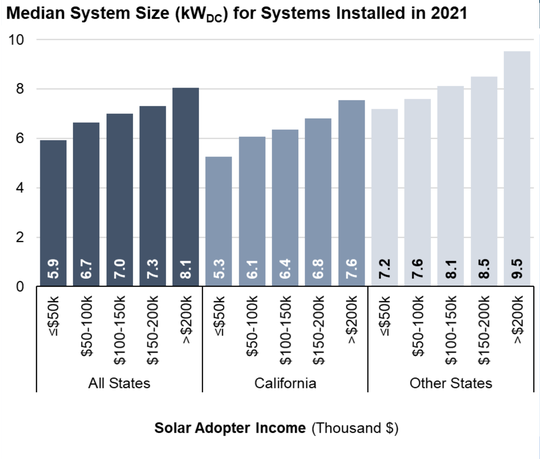
Third-Party Owned

- Solar adopter incomes are presently lower for third-party owned (TPO) systems and have declined at a faster rate than host-owned systems over time
- Adoption under TPO structure has led to *additional* installations (i.e., household would not have adopted if TPO was not an option) (O'Shaugnessy et al. 2021)
- TPO market share has decreased over time



Battery Co-Install

- Roughly 12% of PV systems in 2021 were paired with storage
- Incomes in households with co-installs skew high, which may correspond with the additional cost of storage
- Hawaii is an exception where ~90% of PV systems installed in 2021 were paired with storage, leading to similar income levels.

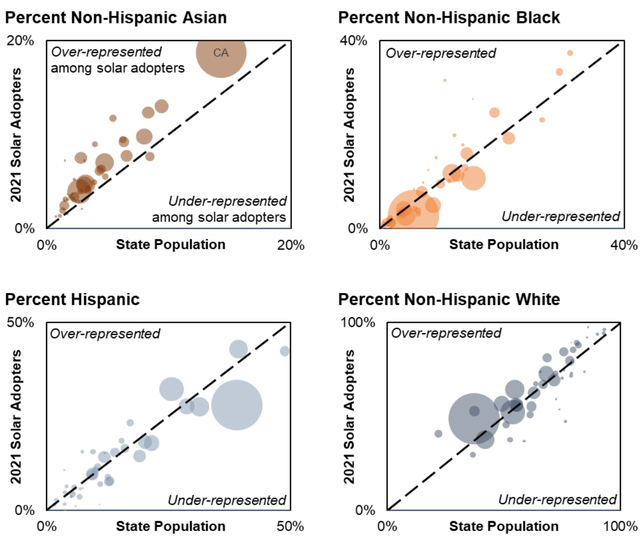


System Sizes

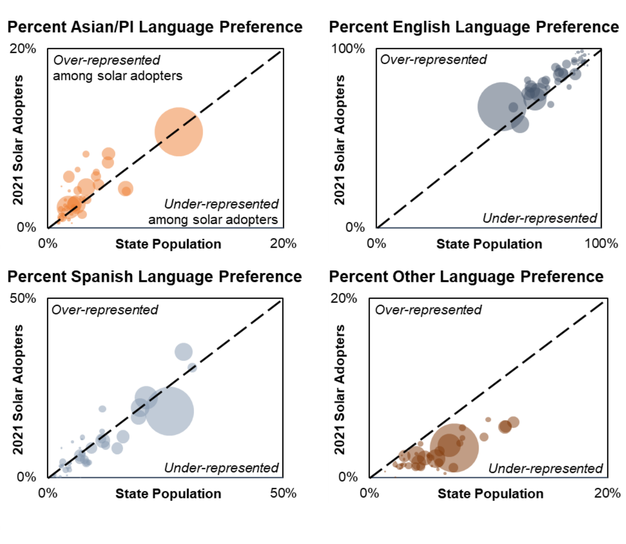
- Higher income households install larger systems
- Across the sample, households with incomes >$200k had systems 37% larger than those with incomes <= $50k
- May be due to larger systems costing more in addition to higher-income households potentially having larger homes with larger roof square footage and/or higher electricity consumption to offset

Results: Other Socio-Economic Trends

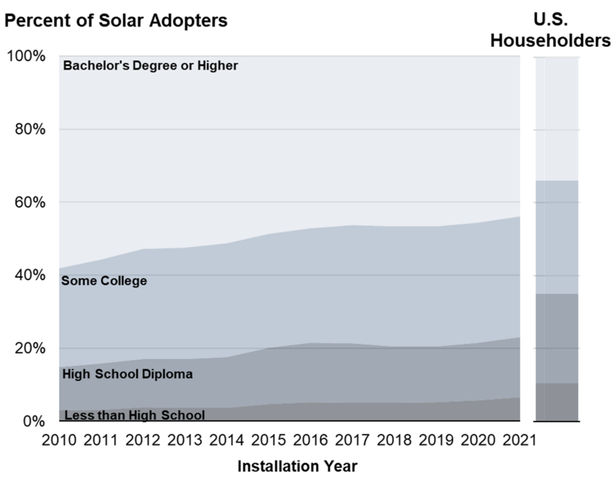
Compared to their state, solar adopters skew more White and Asian, less Hispanic or Black,…



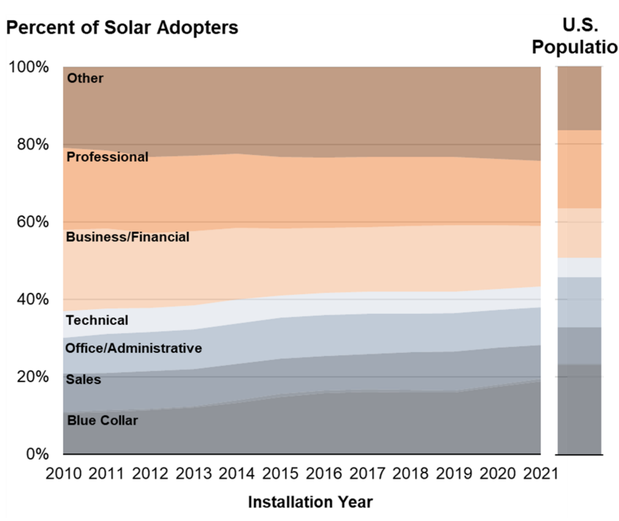
…And prefer English over any other language. This shows compounding impacts of language on top of race.



Solar adopters skew towards higher education levels, though this skew is diminishing over time.



Similarly, adopters tend to not come from blue collar occupations, though this is also diminishing over time.



Additional Resources

Our Report

Data Tool

Request Tech. Assistance

Lawrence Berkeley National Laboratory
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