

# Sources of Regional Variation in Intergenerational Mobility: Evidence from the Netherlands

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EEA ESEM 2024, Rotterdam

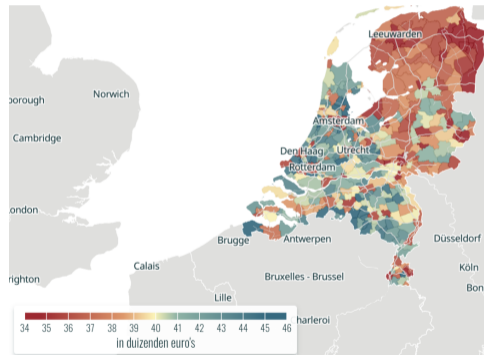
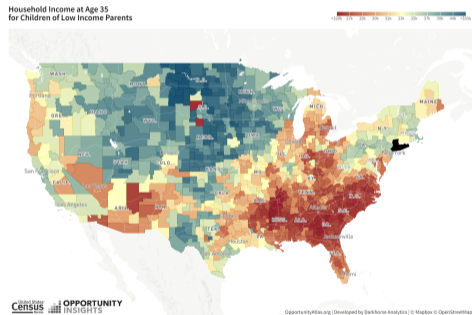
Leiden University

August 26, 2024

# Opportunity Atlas: US vs. the Netherlands

For a given level of parents' income, children's outcomes vary across areas

Sources: Opportunity Insights (left), Kansenkaart.nl (right)



# Do region environments affect children's outcomes?

Every additional year spent in better area improves children's own outcomes by  $\approx 4\%$  in all studies  
US: Chetty and Hendren (2018), Australia: Deutscher (2020), Africa: Alesina et al. (2021)

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1. Replicate Chetty and Hendren (2018a) using Dutch administrative data
  - ▶ for outcomes **after** childhood (i.e., from age 24 onwards)
  - ▶ and outcomes **during** childhood (i.e., first schooling decision at age 14)
2. Use children's track choices at age 14 to evaluate **key identifying assumption** in movers-exposure design:
  - ▶ Parents' decision to move into better regions does not vary with the child's age at move

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1. Replicate Chetty and Hendren (2018a) using Dutch administrative data
  - ▶ for outcomes **after** childhood (i.e., from age 24 onwards): 0%
  - ▶ and outcomes **during** childhood (i.e., first schooling decision at age 14): 4% - 2%
2. Use children's track choices at age 14 to evaluate **key identifying assumption** in movers-exposure design:
  - ▶ Parents' decision to move into better regions does not vary with the child's age at move: *it does!*

# Dutch administrative data

on children born between 1985 and 1990 and their parents' household income/location,  $\approx$  1.2 million children

- ▶ **Parent's location:** Province/**COROP region**/municipality for every year between 1995 and 2018;
  - ▶ Get two subsamples: **permanent residents** and **one-time movers**

# Dutch administrative data

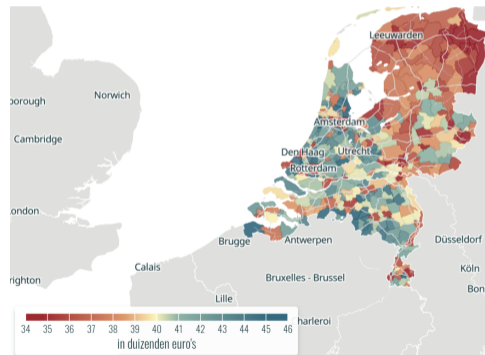
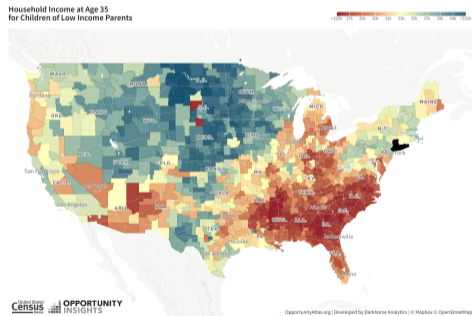
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- ▶ **Parent's location:** Province/**COROP region**/municipality for every year between 1995 and 2018;
  - ▶ Get two subsamples: **permanent residents** and **one-time movers**
- ▶ **Parental endowment:** Average gross household income between 2003 and 2007 (Solon 1999; Chetty et al. 2014)
  - ▶ Rank parents relative to other parents in the NL
- ▶ **Children's income:** Average gross household income at age 28
  - ▶ Rank children relative to others in the same birth cohort in the NL
- ▶ **Children's educational attainment:** dummy variables measured at ...
  - ▶ age 14: one for high track choice, zero otherwise
  - ▶ age 19: one for high-track degree, zero otherwise
  - ▶ age 28: one for Bachelor degree (or higher), zero otherwise

# Opportunity Atlas: US vs. the Netherlands for permanent residents

(i.e., children whose parents did not move across regions between 1995 and 2018)

Sources: Opportunity Insights (left), Kansenskaart.nl (right)





Can this regional variation be explained by ...

# PLACE EFFECTS OR SORTING?

Using variation across ages of move of children whose parents moved once to another location during childhood ([Chetty and Hendren 2018a](#))

# Estimating place effects with administrative data

using the quasi-experimental framework as introduced by Chetty and Hendren (2018a)

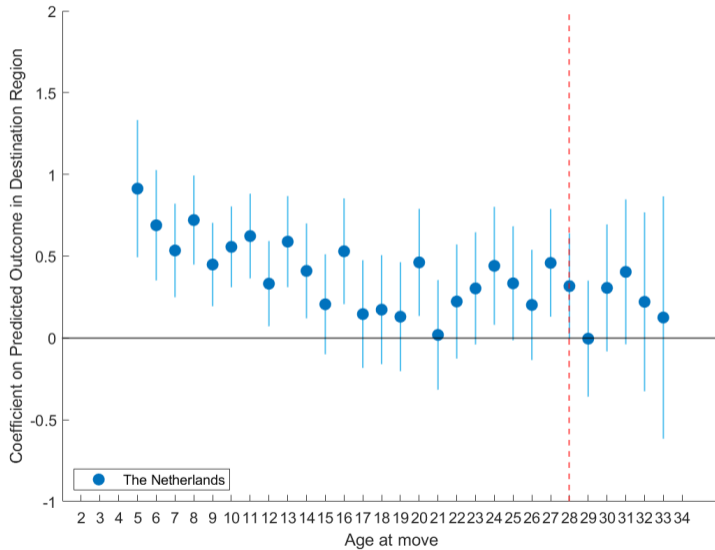
- ▶ Consider a child  $i$  born in year  $s(i)$  whose parents, with parental endowment  $p_i$ , moved from origin  $o(i)$  to destination  $d(i)$  when the child was  $m(i)$  years old
- ▶ Comparing (post-childhood) outcomes between children who move at age  $m$  to better or worse areas, after controlling for origin, parents' income, age at move, year of birth fixed effects (and interactions of these):

$$y_i^{28} = \alpha_{posm} + \sum_{m=5}^{33} \mathbf{b}_m \mathbf{1}(m(i) = m) \Delta_{odps}^{28} + \varepsilon_i, \quad (1)$$

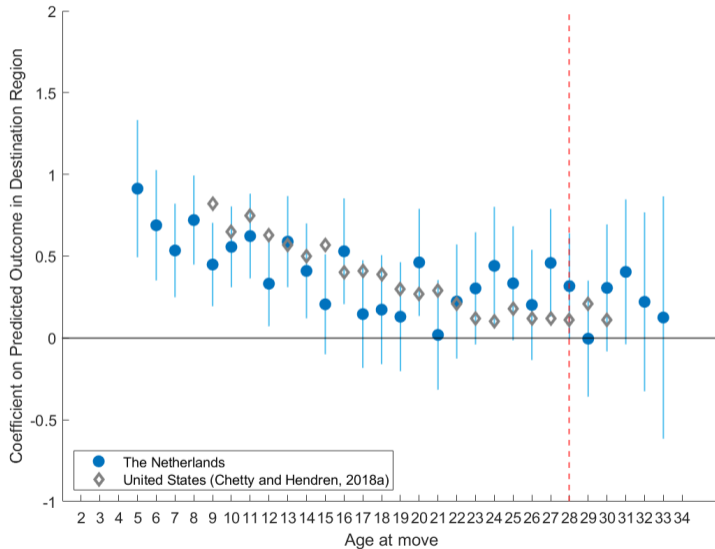
with  $\Delta_{odps}^{28} = \bar{y}_{pds}^{28} - \bar{y}_{pos}^{28}$  (i.e., difference in expected outcomes between destination and origin)

- ▶ **Key identifying assumption:** the extent to which families move to better or worse areas does not vary with the age of their children

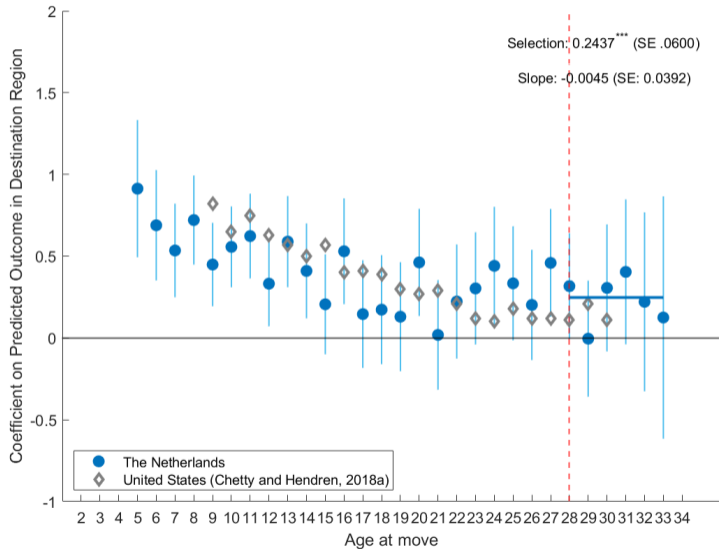
# Results for income rank at age 28



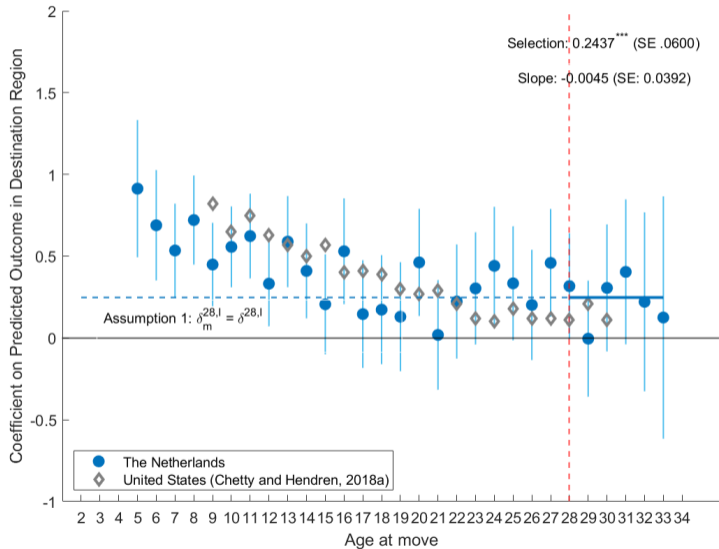
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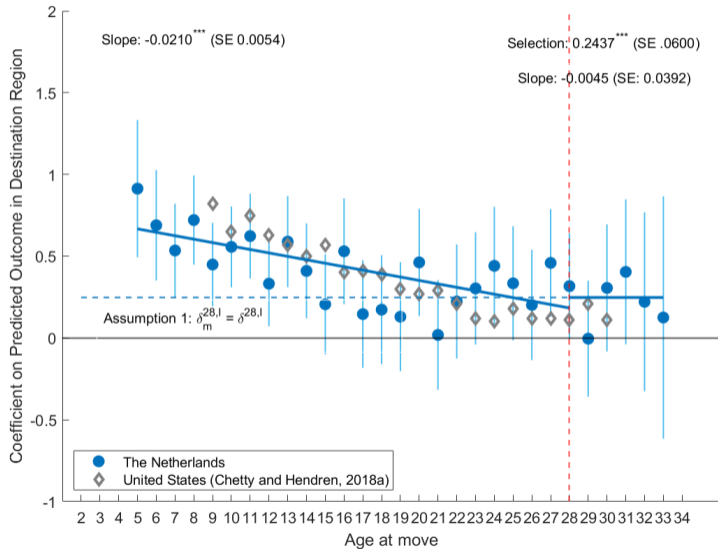
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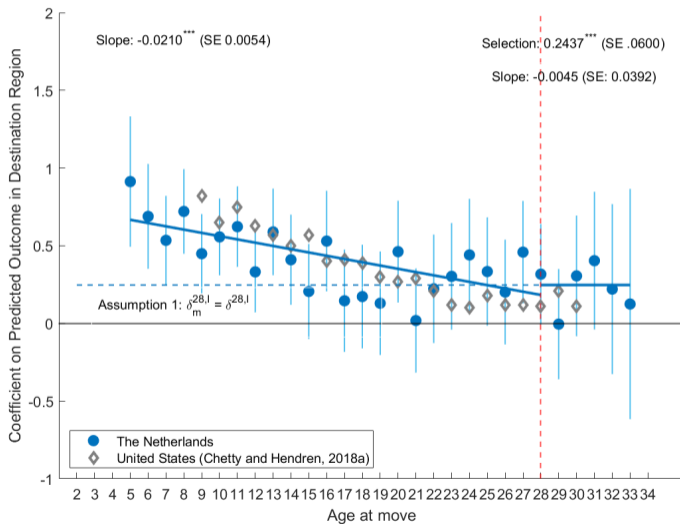


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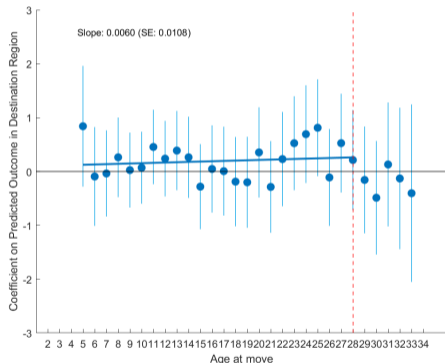
Yearly place effect  $\approx 2.1\%$  in the NL,  $\approx 4\%$  in the US and Australia





# Family fixed effects

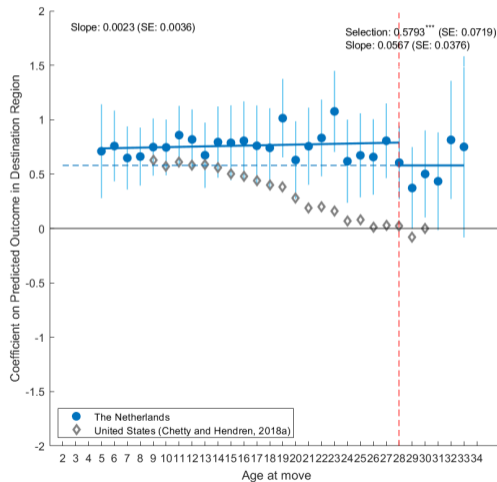
exploiting variation in age at move within families (i.e., comparing siblings)



- ▶ From a downwards sloping relationship between age and mobility → flat relationship
- ▶ Families with better (unobserved) parental inputs tend to systematically migrate to better regions at earlier ages, compared to families with worse determinants
- ▶ Violation of identifying assumption

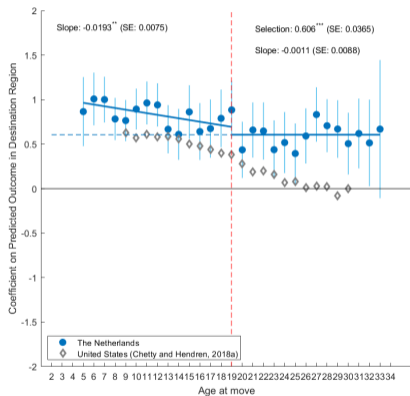
# Results for Bachelor degree at age 28

Yearly place effect  $\approx 0$  pp in the NL, still  $\approx 4$  pp in the US (all robust to family FE)



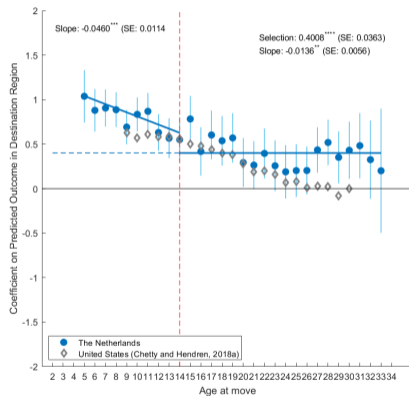
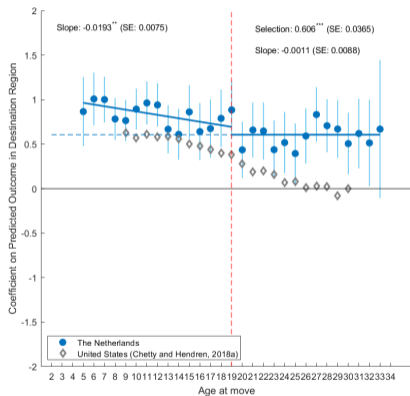
# Does place matter at all? Yes.

Having a high track degree at age 19 (left), chose a high track at age 14 (right) (all robust to family FE)



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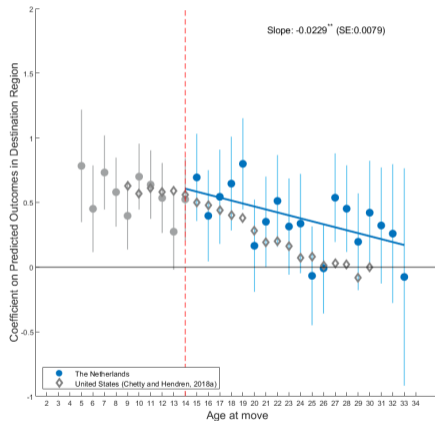
Having a high track degree at age 19 (left), chose a high track at age 14 (right) (all robust to family FE)



From a yearly place effect of  $\approx 0$  pp for age 28, to  $\approx 2$  pp for age 19, to  $\approx 4.6$  pp for age 14

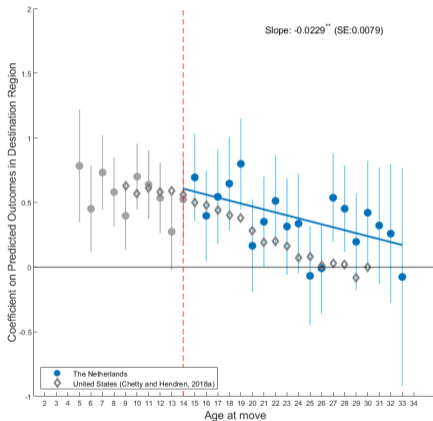
# Test for age-dependent migration into better regions...

by evaluating the association between mobility in higher education and track choices at age 14



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by evaluating the association between mobility in higher education and track choices at age 14



$$y_i^{14} = \alpha_{posm} + \sum_{m=5}^{33} \mathbf{b}_m \mathbf{1}(m(i) = m) \Delta_{odps}^{28} + \varepsilon_i \quad (2)$$



# Key points

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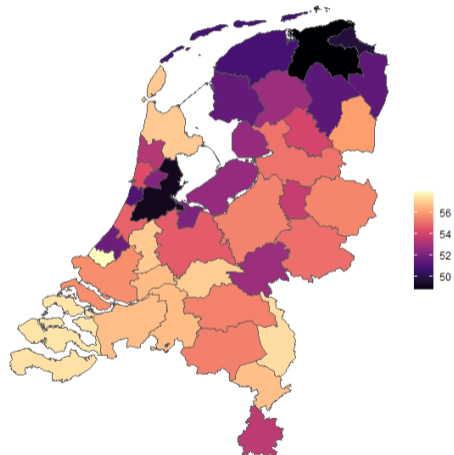
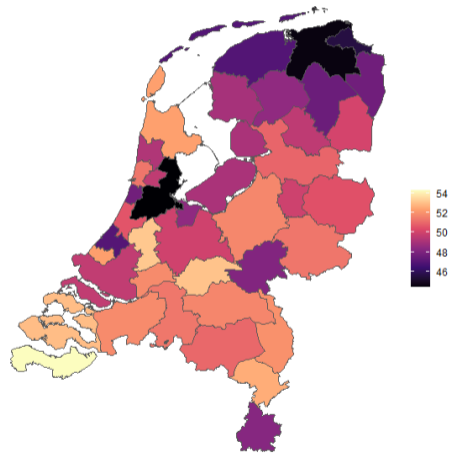
- ▶ Place matters at age 14, less at age 19, and not at age 28
- ▶ Selective sorting across age at move exists: necessary to take this into account when using the movers-exposure design



# APPENDIX

# Regional variation

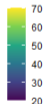
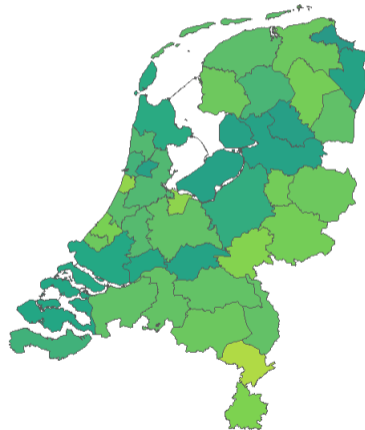
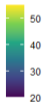
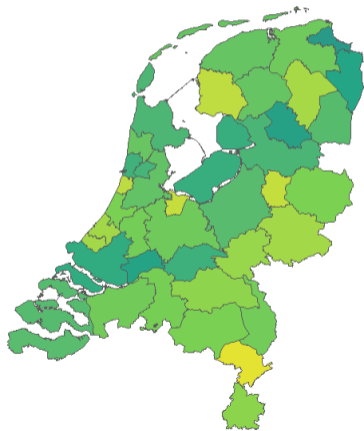
in the conditional expected income rank at age 28 at  $p = 50$  (left) and  $p = 75$  (right)



back

# Regional variation

in the conditional expected probability of having a Bachelor degree at age 28 at  $p = 50$  (left) and  $p = 75$  (right)



back

# UNITED STATES VS. THE NETHERLANDS

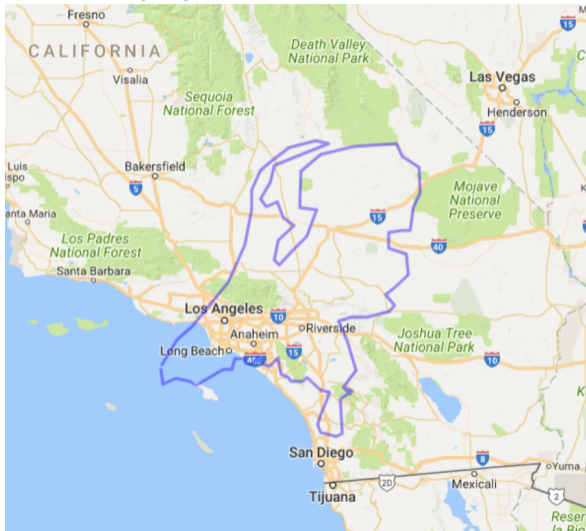
# United States vs. The Netherlands

341,293,002 people vs. 17,618,299 people

- ▶ Rank-rank slope: US: 0.34 (Chetty et al. 2014), NL: 0.22
  - ▶ The *American Dream* in the Netherlands?
- ▶ Education system: US: comprehensive school-system, NL: track-based

# Southern California vs. The Netherlands

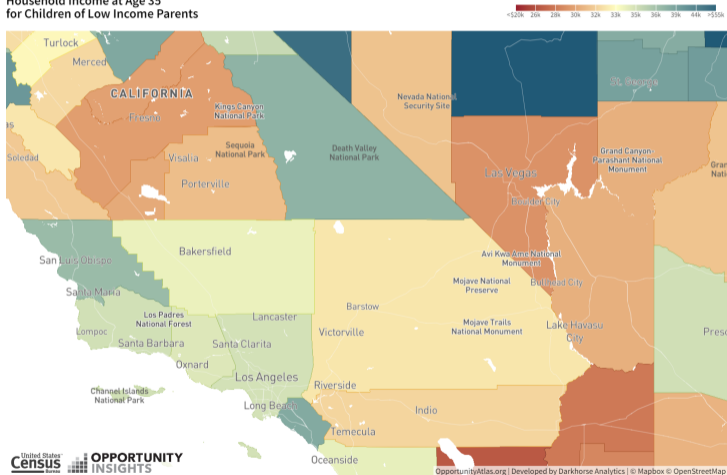
23,86 million people vs. 17,62 million people



# Opportunity Atlas: Southern California

## Household Income at Age 35 (between \$26k and \$50k)

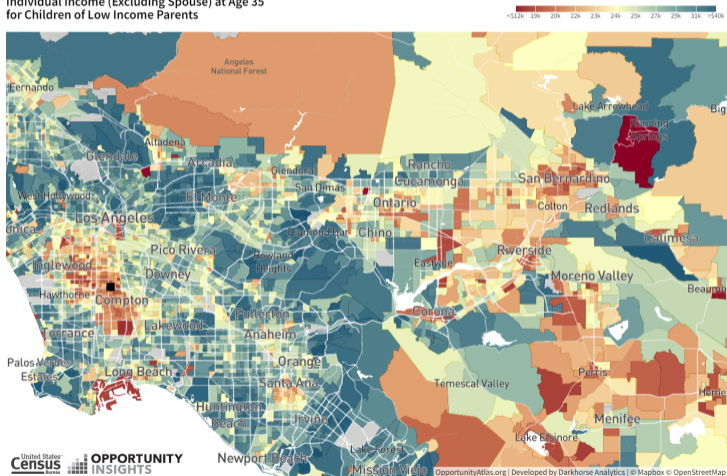
Household Income at Age 35  
for Children of Low Income Parents



# Southern California

## Household Income at Age 35 (between \$12k and \$40k)

Individual Income (Excluding Spouse) at Age 35  
for Children of Low Income Parents

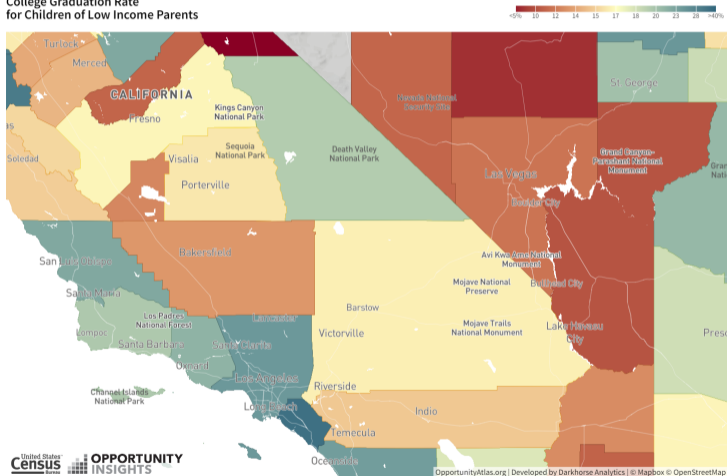




# Opportunity Atlas: Southern California

College graduation rate (between 5% and 30%)

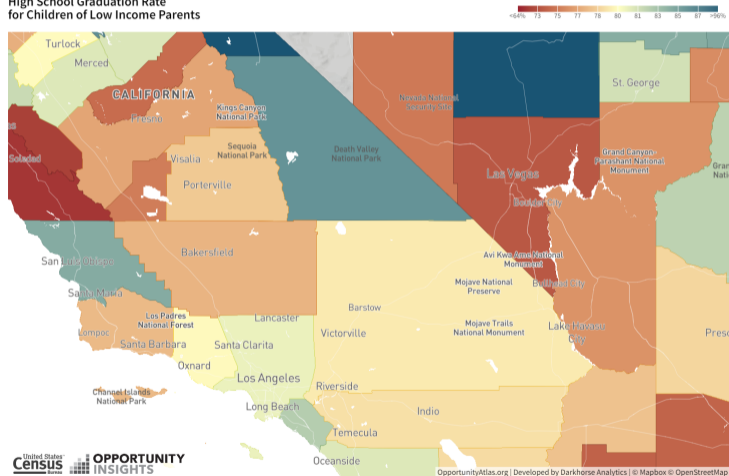
College Graduation Rate  
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# Opportunity Atlas: Southern California

High school graduation rate (between 65% and 96%)

High School Graduation Rate  
for Children of Low Income Parents



# Correlation between place effects for income and education (Chetty and Hendren 2018b)

Finishing high school (18yo): 0.55, Attending college (18yo): 0.46, College graduation (24yo): 0.14

