Does it matter where you came from?
Ancestry composition and economic performance of U.S. counties, 1850 - 2010

Scott L. Fulford, Ivan Petkov, and Fabio Schiantarelli

Indeed, the more advanced a society becomes in material terms, the stronger is the determinant powers of its folkways, for modern technologies act as amplifiers, and modern institutions as stabilizers, and modern elites as organizers of the complex cultural processes.

—Albion’s Seed: Four British Folkways in America (Fischer, 1989, p. 10)

June 2015
Immigration to the United States

- United States absorbed more immigrants than all other nations combined
  - People from many different origins
  - Come at different times,
  - Go to different places within the United States
  - Where they mix, and interact with people from other origins
  - And continue to move, so the mix changes and evolves

Putterman and Weil, 2010

US provides a great laboratory for understanding what matters for development
Immigration to the United States

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- If groups bring something with them when they move that persists (Putterman and Weil, 2010)

- ⇒ US provides a great laboratory for understanding what matters for development
Constructing ancestry

- Construct from 1850-2010, share of each county’s population descended from ancestors who come from every country of origin
  - Use micro-samples from census recording place of birth to construct
  - Create a mapping of ancestry in US in each decade
  - Stock measure, not just tracking first generation migrants
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- Construct county level measure of GDP per capita
  - First complete sub-state measure of income or GDP before 1950
  - Use occupation from census micro-samples to construct measure of services value added
  - Services crucial if want to consider cities
Does the changing makeup of a county matter?

- Composition matters.
  - US is not a “melting pot”
  - Differences persistent for a long time
  - Something groups bring with them and pass on to their children continues to matter.

What matters?

Effect of ancestry correlated with cultural, economic, institutional, and human capital endowments

Culture appears to play the most important and robust role

Culture may work through better functioning local institutions, may reflect good local institutions of home country

Diversity matters as well

Diverse origins good for development

Diverse cultural attributes bad
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- Diversity matters as well
  - Diverse origins good for development
  - Diverse cultural attributes bad
Deep determinants of development?

1. **Institutions**
   - Acemoglu and Robinson (2012); Banerjee and Iyer (2005)

2. **Culture**
   - Guiso, Sapienza, and Zingales (2006); Nunn and Wantchekon (2011); Tabellini (2010)
   - Culture <-> Institutions (Alesina and Giuliano, 2013)

3. **Geography**
   - Diamond (1998); Bloom and Sachs (1998)
   - Geography -> Culture/Ethnicity (Michalopoulos, 2012)

4. **Human capital**
   - Barro and Lee (1994); Glaeser et al. (2004)

5. **Diversity and conflict**
   - Ashraf and Galor (2013); Alesina, Baqir, and Easterly (1999)
Deep determinants of development

- Big questions that are difficult to study (Spolaore and Wacziarg, 2013)
  - Much work in cross-section, difficult to separate out place from people
  - Not many natural experiments
  - Increasing use of use of history to find variation
Deep determinants of development

- Big questions that are difficult to study (Spolaore and Wacziarg, 2013)
  - Much work in cross-section, difficult to separate out place from people
  - Not many natural experiments
  - Increasing use of use of history to find variation

- A key contribution: our work has panel
  - Can examine changes in composition and county GDP
  - Sweep out many of the confounding factors
  - Examine dynamic effects
  - Diversity
Micro samples from census start in 1850 from IPUMS

Only “county groups” available after 1950, aggregate somewhat to maintain consistent geography
### Constructing county ancestry

#### Nativity

<table>
<thead>
<tr>
<th>Place of Birth of this person, naming State or Territory of United States, or the Country, if of foreign birth.</th>
<th>Place of Birth of the Father of this person, naming the State or Territory of United States, or the Country, if of foreign birth.</th>
<th>Place of Birth of the Mother of this person, naming the State or Territory of United States, or the Country, if of foreign birth.</th>
</tr>
</thead>
</table>

---

- Additional details
- Initial distribution
- More on ethnicity
<table>
<thead>
<tr>
<th>Year</th>
<th>1870</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>40</td>
</tr>
<tr>
<td>Birthplace</td>
<td>Ireland</td>
</tr>
<tr>
<td>Living</td>
<td>Suffolk, MA</td>
</tr>
<tr>
<td>Mother’s birthplace</td>
<td>–</td>
</tr>
<tr>
<td>Father’s birthplace</td>
<td>–</td>
</tr>
<tr>
<td>Race</td>
<td>“White”</td>
</tr>
</tbody>
</table>
Year | 1870  
---|---  
Age | 40  
Birthplace | Ireland  
Living | Suffolk, MA  
Mother’s birthplace | –  
Father’s birthplace | –  
Race | “White”  

### Ancestry

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>0</th>
<th>0</th>
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<td>Ireland</td>
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<td></td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Iterative construction 1**

**Constructing the AV**
**Does it matter where you came from?**
**Fulford, Petkov, Schiantarelli**
Iterative construction 2

Year: 1880
Age: 25
Birthplace: Pennsylvania
Living: Suffolk, MA
Mother’s birthplace: Ireland
Father’s birthplace: Germany
Race: “White”

Does it matter where you came from?
### Iterative construction 2

<table>
<thead>
<tr>
<th>Year</th>
<th>1880</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>25</td>
</tr>
<tr>
<td>Birthplace</td>
<td>Pennsylvania</td>
</tr>
<tr>
<td>Living</td>
<td>Suffolk, MA</td>
</tr>
<tr>
<td>Mother’s birthplace</td>
<td>Ireland</td>
</tr>
<tr>
<td>Father’s birthplace</td>
<td>Germany</td>
</tr>
<tr>
<td>Race</td>
<td>“White”</td>
</tr>
</tbody>
</table>

#### Ancestry

\[
\begin{pmatrix}
0.5 \\
0.5 \\
0
\end{pmatrix} = 0.5 \times \begin{pmatrix} 1 \\
0 \\
0 \end{pmatrix} + 0.5 \times \begin{pmatrix} 0 \\
1 \\
0 \end{pmatrix}
\]

- Ireland
- Germany
- Africa
Year: 1880
Age: 23
Birthplace: Pennsylvania
Living: Suffolk, MA
Mother’s birthplace: Ireland
Father’s birthplace: Pennsylvania
Race: “White”

Does it matter where you came from?

Fulford, Petkov, Schiantarelli

Constructing the AV
<table>
<thead>
<tr>
<th>Iterative construction 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year</strong></td>
</tr>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td><strong>Birthplace</strong></td>
</tr>
<tr>
<td><strong>Living</strong></td>
</tr>
<tr>
<td><strong>Mother’s birthplace</strong></td>
</tr>
<tr>
<td><strong>Father’s birthplace</strong></td>
</tr>
<tr>
<td><strong>Race</strong></td>
</tr>
</tbody>
</table>

**Ancestry**

\[
\begin{pmatrix}
0.55 \\
0.45 \\
0
\end{pmatrix}
= 0.5 \times (1, 0, 0) + 0.5 \times (\text{Father’s AV})
\]

**Father’s AV**

= Ancestry in Pennsylvania in 1860 among “White” 20-30 year olds

= \( (0.1, 0.9, 0) \)
<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>45</td>
</tr>
<tr>
<td>Birthplace</td>
<td>Pennsylvania</td>
</tr>
<tr>
<td>Living</td>
<td>Suffolk, MA</td>
</tr>
<tr>
<td>Mother’s birthplace</td>
<td>–</td>
</tr>
<tr>
<td>Father’s birthplace</td>
<td>–</td>
</tr>
<tr>
<td>Race</td>
<td>“Black”</td>
</tr>
<tr>
<td></td>
<td>2010</td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
</tr>
</tbody>
</table>

### Ancestry

<table>
<thead>
<tr>
<th></th>
<th>Ireland</th>
<th>Germany</th>
<th>Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

More on race
Ancestry in 1850
Ancestry in 1860

Maps showing the distribution of African American, German, Irish, Scandinavian, Italian, and Mexican ancestry across the United States in 1860.
Ancestry in 1880

- African American 1880
- Germany 1880
- Ireland 1880
- Scandinavian 1880
- Italy 1880
- Mexico 1880
Ancestry in 1890
Ancestry in 1900
Ancestry in 1910

- African American 1910
- Germany 1910
- Ireland 1910
- Scandinavian 1910
- Italy 1910
- Mexico 1910

Legend:
- Fraction 0.5
- Fraction 0.25
- Fraction 0
- No Data
Ancestry in 1920

- African American 1920
- Germany 1920
- Ireland 1920
- Scandinavian 1920
- Italy 1920
- Mexico 1920
Ancestry in 1930

- African American 1930
- Germany 1930
- Ireland 1930
- Scandinavian 1930
- Italy 1930
- Mexico 1930
Ancestry in 1940
Ancestry in 1950

- African American 1950
- Germany 1950
- Ireland 1950
- Scandinavian 1950
- Italy 1950
- Mexico 1950

Legend:
- Fraction 0.5
- Fraction 0.25
- Fraction 0
- No Data
Ancestry in 1960

- African American 1960
- Germany 1960
- Ireland 1960
- Scandinavian 1960
- Italy 1960
- Mexico 1960
Ancestry in 1970
Ancestry in 1980

- African American 1980
- Germany 1980
- Ireland 1980
- Scandinavian 1980
- Italy 1980
- Mexico 1980
Ancestry in 1990
Ancestry in 2000

[Maps showing ancestry distribution across the United States in 2000, including African American, German, Irish, Scandinavian, Italian, and Mexican ancestry.]
Ancestry in 2010
Problem: Measures of county income available only after 1950

- Before that only manufacturing and agriculture from census
- But services matter if want to compare areas that include cities
County GDP over time

- Problem: Measures of county income available only after 1950
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  - But services matter if want to compare areas that include cities

- Construct measure of services value added using census micro-samples on occupations
  - Use national estimates of value added for each occupation
  - Micro-samples -> number of people engaged detailed occupation within county
    - Allows New York City with many high-value-added finance occupations to have much higher income
Count y GDP over time

Problem: Measures of county income available only after 1950
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Combine with county income measures after 1950, assuming growth in income same as growth in GDP

To our knowledge: the first measure of GDP below state level before 1950.
Does ancestry matter? How?

1. Test whether ancestry matters for local development
   - Unrestricted effect for each ancestry
   - What are these effects correlated with?

2. What matters?
   - Weight country-of-origin measures by ancestry in each county
   - Which characteristics of country-of-origin matter?
   - Which matter most?

3. Dynamics and endogeneity

4. Diversity
Does ancestry matter?

\[ y_{ct} = \theta_c + \lambda_t + \sum_{a=1}^{A} \alpha_a \pi_{ct}^a + \gamma X_{ct} + \epsilon_{ct} \]
Yes, ancestry matters

\[ y_{ct} = \theta_c + \lambda_t + \sum_{a=1}^{A} \alpha_a \pi_{ct}^a + \gamma X_{ct} + \epsilon_{ct} \]

- Joint test of \( \alpha_a \) all zero.
- Reject very strongly in all cases
  - With fixed effects
  - Only testing Non-African-American ancestries
  - With State X Year effects (only within state identification)
  - With lagged county income
  - With Countygroup trends
  - With controls for county education, population density, and fractionalization
  - Clustering at state level
How does ancestry matter?

- **Economic**: A summary measure of what groups could bring,
  - GDP per capita in 1870 from Maddison (1995)
  - Ratio to US GDP at time of arrival

- **Institutional**:
  - Political participation compared to US
  - State Centralization in 1500 (Putterman and Weil, 2010)

- **Human capital**:
  - Education in country of origin at time of migration,
  - Education of immigrants at time of migration

- **Cultural**:
  - Trust, Obedience, Respect for others, as measured in World Values Surveys since 1980 (Tabellini, 2010)
Economic: 1870 GDP

Country of origin log GDP per person in 1870

Ancestry coefficient

Ancestries before 1924 slope (s.e.) = 0.866 (0.241)
All ancestries slope (s.e.) = 0.537 (0.270)

Economic: 2010 GDP

Country of origin log GDP per person in 2010

Ancestry coefficient

Ancestries before 1924 slope (s.e.) = 0.445 (0.160)
All ancestries slope (s.e.) = 0.409 (0.171)

Economic: Arrival weighted origin GDP

Ancestry coefficient

Ancestries before 1924 slope (s.e.) = 1.439 (0.357)
All ancestries slope (s.e.) = 0.703 (0.396)

Difference in log US and origin GDP by time of arrival

Ancestries before 1924 slope (s.e.) = 0.807 (0.210)
All ancestries slope (s.e.) = 0.465 (0.239)
Institutions: State history

Normalized Putterman statehist v3 discount 5%

Ancestry coefficient

Ancestries before 1924 slope (s.e.) = 1.743 (0.900)
All ancestries slope (s.e.) = 2.059 (0.859)

Human capital: Education of immigrants

Ratio census education at time of arrival (d 0.5%)

Ancestry coefficient

Ancestries before 1924 slope (s.e.) = 4.097 (0.956)
All ancestries slope (s.e.) = 4.394 (1.049)

Human capital: Origin education

Ratio in years education at time of arrival (d 0.5%)

Ancestry coefficient

Ancestries before 1924 slope (s.e.) = 1.710 (0.413)
All ancestries slope (s.e.) = 0.863 (0.492)
Ancestry coefficient

Culture: Trust

Fraction origin: Most people can be trusted

Ancestries before 1924 slope (s.e.) = 1.839 (0.922)
All ancestries slope (s.e.) = 2.521 (0.849)

Culture: Obedience

Fraction origin: Obedience important quality for children

Ancestries before 1924 slope (s.e.) = -2.010 (0.639)
All ancestries slope (s.e.) = -2.266 (0.657)

Culture: Principal component

Principle component of trust, respect, control, obedience

Ancestries before 1924 slope (s.e.) = 0.848 (0.313)
All ancestries slope (s.e.) = 1.001 (0.319)

Values: Thrift

Fraction origin: Thrift and saving important

Ancestries before 1924 slope (s.e.) = 2.354 (1.393)
All ancestries slope (s.e.) = 3.342 (1.226)
Measuring the importance of ancestry

- Create a weighted average for each county based on some country of origin characteristic

\[ \widehat{z}_{ct} = \sum_{a=1}^{A} \pi_{ct}^a z^a \]

- Predicted value for a county, if only know the ancestry composition and something about country of origin at one point in time

  - How does (economic) success of a county’s ancestors in 1870 predict success today?
  - What is the expected trust of a county, given its composition?
  - Putterman and Weil (2010) construct similar measures across countries
Measuring the importance of ancestry 2

- What groups bring may change over time
  - Education of 1850 Irish, not the same as Irish in 1900
- Can form country of origin characteristic weighted by arrival density:

\[ \tilde{z}_t^a = \sum_{\tau=0}^{t} \left( z_{\tau}^a / z_{\tau}^{US} \right) (1-\delta)^{t-\tau} F_t^a(\tau) \]

- \( F_t^a(\tau) \) is the arrival density of group \( a \) up to time \( \tau \)
- \( \delta \) is the rate of depreciation of the importance of that characteristic
\[ y_{ct} = \theta_c + \lambda_{st} + \beta \hat{Z}_{ct} + \gamma X_{ct} + \epsilon_{ct} \]

<table>
<thead>
<tr>
<th>log county GDP per person</th>
<th>Each cell from a separate estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1870 GDP weighted by county AV</td>
<td>0.722*** (0.0720) 0.314*** (0.0738) 0.225* (0.112) -0.121 (0.105)</td>
</tr>
<tr>
<td>Migrant education/US ratio at arrival (( \delta = 0 ))</td>
<td>0.812*** (0.124) 0.0865 (0.0823) 0.140 (0.180) -1.246*** (0.247)</td>
</tr>
<tr>
<td>Origin country education US ratio at arrival (( \delta = 0 ))</td>
<td>0.874*** (0.125) 0.326*** (0.0837) 0.148 (0.190) -0.414** (0.163)</td>
</tr>
<tr>
<td>State history in 1500</td>
<td>1.815*** (0.224) 0.773*** (0.195) 0.601** (0.267) -0.335 (0.225)</td>
</tr>
<tr>
<td>Arrival political participation</td>
<td>0.0673*** (0.0160) -0.0271*** (0.0107) -0.0591*** (0.0231) -0.137*** (0.0217)</td>
</tr>
<tr>
<td>Trust</td>
<td>2.587*** (0.386) 1.343*** (0.302) 2.889*** (0.615) 1.234*** (0.372)</td>
</tr>
<tr>
<td>Thrift</td>
<td>1.380*** (0.471) 1.751*** (0.386) -0.377 (0.768) 2.063*** (0.404)</td>
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<tr>
<td>Observations</td>
<td>16713 16,713 16,713 16,713</td>
</tr>
<tr>
<td>Year X State FE</td>
<td>No Yes No Yes</td>
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<tr>
<td>Other controls</td>
<td>No No Yes Yes</td>
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<tr>
<td>County groups</td>
<td>1151 1151 1151 1151</td>
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</tbody>
</table>

Controls: the fraction African-American, Native American, and the log population density
## What matters most?

<table>
<thead>
<tr>
<th></th>
<th>Log(County group GDP per capita)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trust weighted by county AV</td>
</tr>
<tr>
<td></td>
<td>3.253*** (0.544)</td>
</tr>
<tr>
<td></td>
<td>3.508*** (0.632)</td>
</tr>
<tr>
<td></td>
<td>3.003*** (0.708)</td>
</tr>
<tr>
<td></td>
<td>2.830*** (0.652)</td>
</tr>
<tr>
<td></td>
<td>State history in 1500</td>
</tr>
<tr>
<td></td>
<td>-0.0175 (0.372)</td>
</tr>
<tr>
<td></td>
<td>0.0819 (0.310)</td>
</tr>
<tr>
<td></td>
<td>0.411 (0.348)</td>
</tr>
<tr>
<td></td>
<td>0.357 (0.249)</td>
</tr>
<tr>
<td></td>
<td>Migrant education/US ratio at arrival (δ = 0)</td>
</tr>
<tr>
<td></td>
<td>0.187 (0.231)</td>
</tr>
<tr>
<td></td>
<td>-1.318*** (0.269)</td>
</tr>
<tr>
<td></td>
<td>-0.299 (0.204)</td>
</tr>
<tr>
<td></td>
<td>-1.746*** (0.224)</td>
</tr>
<tr>
<td>Observations</td>
<td>16,713</td>
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<tr>
<td>R-squared</td>
<td>0.960</td>
</tr>
<tr>
<td>State X Year FE</td>
<td>No</td>
</tr>
<tr>
<td>Other controls</td>
<td>No</td>
</tr>
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<td>County groups</td>
<td>1151</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Controls: the fraction African-American, Native American, and the log population density
Principal component of Trust, Control, Respect, Obedience following Tabellini (2010)

- Trust most robust and important determinant
Is the relationship causal?

- Two main econometric issues in identifying the effect of ancestry on output:
  - **Omitted variables.** We are able to control for:
    - Unchanging county characteristics through county fixed effects
    - Common temporal changes
    - State level changes through State-Year effects
    - Serial correlation through lagged dependent variable
  - **Simultaneity/reverse causality**
    - If more trusting people move to a booming county \(\Rightarrow\) simultaneity/reverse causality bias
    - Solution: use a one decade lag of trust, include lagged dependent variable \(\Rightarrow\) Nearly the same coefficient
    - More general dynamic model: Reverse impact of GDP to ancestry composition significant but small

Granger Causality
Rich ancestries in poor places

<table>
<thead>
<tr>
<th></th>
<th>Log(County group GDP per capita)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1870 GDP weight</td>
<td>-0.336*** (0.0137)</td>
</tr>
<tr>
<td>by county AV</td>
<td>0.314*** (0.0738)</td>
</tr>
<tr>
<td>Trust weighted</td>
<td>-0.507*** (0.0574)</td>
</tr>
<tr>
<td>by county AV</td>
<td>1.343*** (0.302)</td>
</tr>
<tr>
<td>One decade lag</td>
<td>1.065*** (0.0583)</td>
</tr>
<tr>
<td>Decade lag of log</td>
<td>0.820*** (0.0566)</td>
</tr>
<tr>
<td>county GDP</td>
<td>0.433*** (0.00658)</td>
</tr>
<tr>
<td>State X Year FE</td>
<td>Yes</td>
</tr>
<tr>
<td>County group FE</td>
<td>Yes</td>
</tr>
<tr>
<td>County groups</td>
<td>1151</td>
</tr>
</tbody>
</table>

Rich ancestries are in poor places in the US!
Panel necessary to understand effects of culture and institutions.
Does who you come in contact with matter?

- Groups don’t exist in a vacuum
- Must share decisions and work with other groups
- We show who groups interact with matters as well
Does who you come in contact with matter?

- Groups don’t exist in a vacuum
- Must share decisions and work with other groups
- We show who groups interact with matters as well
- Fractionalization measures diversity of groups:

\[
frac_{c,t} = 1 - \sum_{a=1}^{A} (\pi_{ct}^a)^2
\]

- Weighted fractionalization measures diversity of attributes:

\[
frac_w = 1 - \sum_{j=1}^{A} \sum_{k=1}^{A} \pi_{ct}^i \pi_{ct}^k s_{ij}
\]

How does ancestry matter?

Does it matter where you came from?

Fulford, Petkov, Schiantarelli
Does who you come in contact with matter?

<table>
<thead>
<tr>
<th>Control</th>
<th>Trust weighted by county AV</th>
<th>Trust weighted fractionalization</th>
<th>Fractionalization</th>
<th>Trust weighted fractionalization</th>
<th>State history in 1500 weighted by AV</th>
<th>Migrant education/US ratio at arrival ($\delta = 0$)</th>
<th>Log(County group income per capita)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.405** (0.162)</td>
<td>1.101*** (0.167)</td>
<td>-2.665*** (0.490)</td>
<td>-1.670*** (0.316)</td>
<td>0.529** (0.257)</td>
<td>0.0495 (0.185)</td>
<td>0.884*** (0.123)</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>1.002*** (0.135)</td>
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<td>1.424*** (0.173)</td>
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<td>1.044*** (0.152)</td>
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<td>1.279*** (0.224)</td>
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<td></td>
<td></td>
<td>1.277*** (0.190)</td>
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<tr>
<td>State X Year</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Other controls</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Education controls</td>
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<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>County group FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>County groups</td>
<td>1151</td>
<td>1151</td>
<td>1148</td>
<td>1148</td>
<td>1148</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Controls: the fraction African-American, Native American, and the log population density
County education: literacy before 1940, years education after
### Does who you come in contact with matter?

| Trust weighted by county AV | 2.015*** (0.411) | 2.643*** (0.371) | 2.773*** (0.720) | 2.934*** (0.471) |
| Fractionalization | 3.281*** (0.550) | 2.324*** (0.529) | 3.322*** (0.487) | 2.724*** (0.385) |
| Trust weighted fractionalization | -5.410*** (0.855) | -2.615*** (0.794) | -4.811*** (0.962) | -2.085*** (0.733) |
| Fractionalization$^2$ | -1.751*** (0.449) | -0.976** (0.401) | -1.807*** (0.429) | -1.511*** (0.305) |
| (Trust weighted fractionalization)$^2$ | 8.136*** (2.010) | 1.148 (1.921) | 6.525*** (2.113) | 0.817 (1.752) |

| State hist, Mig. Ed | Yes | Yes | Yes | Yes |
| State X Year | No | Yes | No | Yes |
| Other controls | No | No | Yes | Yes |
| Education controls | No | No | No | Yes |
| County group FE | Yes | Yes | Yes | Yes |
| County groups | 1151 | 1151 | 1148 | 1148 |

Controls: the fraction African-American, Native American, and the log population density. County education: literacy before 1940, years education after.
Summary on diversity

- Positive effect of fractionalization
- Negative effect of trust fractionalization
- Marginal effect of fractionalization decreasing in its level
  - Positive effect larger for more homogenous societies
- Marginal effect of trust fractionalization decreasing in absolute value
  - Negative effect larger for more homogenous societies
- No interior maximum or minimum
Ancestry has a persistent and large effect

Groups are different and differences persist for a long time
Ancestry has a persistent and large effect
- Groups are different and differences persist for a long time
- The effect is closely related to conditions in the country of origin
  - Culture seems to play the most important and robust role
  - Economic and institutional experience matter also
  - Education on arrival either unimportant or negative
    - Perhaps education largely determined by local institutions—initial endowment ceases to matter quickly
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Diversity has a complicated relationship with development
- In multi-cultural US, diversity by itself is good
- Sharing with groups with very different cultural/economic endowments bad
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Diversity has a complicated relationship with development
- In multi-cultural US, diversity by itself is good
- Sharing with groups with very different cultural/economic endowments bad
Panel is necessary
- Rich and trusting groups are in poor places on average
Many interesting questions

- Long panel—160 years!—that can answer many interesting questions
- Why does culture matter?
  - Willingness to make contracts, trade?
  - Willingness to invest in capital or human capital?
  - Local institutions?
- Why is diversity important?
  - Role of genetic diversity (Ashraf and Galor, 2013)
- More on convergence
- Other outcomes: inequality, political institutions, ethnicity
References


References


Missing records and aggregation

- 1890 individual records destroyed in a fire
  - Still have county aggregates for immigration, nativity
- 1960 micro-samples only give state of residence
- 1970 onwards only give some grouping of counties
  - “county group” or PUMA
- 1890 and 1960: use the larger aggregates to update for migration and immigration
  - Maintain the demographic structure from previous years

To construct consistent panel
- Use counties where available, then aggregate to 1980 PUMAs
- 1100 PUMAs compared to 3200 counties
- Have county level AV through 1940, county GDP per person entire period
Need to initialize for ancestry of non-migrants before 1850.

1790 census provides “nationality” for each state:
- English and Welsh, Irish, Scotch, French, German (Hebrew), Dutch, and Other.

Update with immigration records:
- US started recording the country of origin of immigrants and state where end up by decade in 1820.
- Imperfect, but allows to capture immigrants before micro-samples of census.
- Immigrants who are still alive in 1850 captured, so Irish, Germans not a problem.
Race

- Rape of slave women common, but children still slaves (Kolchin, 2003; Higginbothham and Kopytoff, 2000, pp. 124-5)
- Anti-miscegenation laws still in effect in 17 states until ruled unconstitutional in 1967, meant little interracial mixing
- Anti-miscegenation laws required definition of race
  - While not universal, “one drop” rule meant considered black if any African ancestry (Kennedy, 2000)
- Inter-racial marriage still low (3.2% all marriages in 1980 among all races) but has grown rapidly since (Wang, 2012)
Ancestry and ethnicity

- Correlation between AV and ethnicity across county groups 2000
  - 0.79 Irish
  - 0.91 Italian
  - 0.89 German
  - 0.98 Mexican (often first generation)
  - 0.95 Norwegian
  - 0.92 Swedish
    - 0.96 combined Swedish/Norwegian
  - 0.99 African-American
Ancestry and ethnicity

- English puzzling: AV for English (includes Welsh and Scotch Irish) much higher than English ethnicity
  - Correlation only 0.31
  - Census only 5.9% report English Ethnicity
  - But 7.2% report “American”, 19.1 do not report, 1.4% report White/Caucasian
- Combining these categories with English, correlation with AV 0.93
- Support of hypothesis that “ethnicity” is optional for dominant group (Waters, 1996)
- Further evidence for constructivist approach, ethnicity self-reinforcing
  - Difference between AV and self-reported is increasing in AV
  - Where more people of German ancestry, disproportionately more say German
Aggregate county GDP

Historical GDP per capita
Constructed aggregate county GDP per person
Constructed aggregate county GDP per person (using county income)
Services in 1870

Does it matter where you came from?

Fulford, Petkov, Schiantarelli
Services in 1900

Does it matter where you came from? Fulford, Petkov, Schiantarelli
Shared growth

![Graph showing the log income per capita over the years from 1850 to 2010. The graph displays the 10/90 percentile, 25/75 percentile, and median values.](image)

Return

Appendix

Does it matter where you came from?  

Fulford, Petkov, Schiantarelli
## Endogeneity and Granger Causality

<table>
<thead>
<tr>
<th></th>
<th>log County GDP</th>
<th>Trust</th>
<th>log County GDP</th>
<th>Trust</th>
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</thead>
<tbody>
<tr>
<td>Decade lag of log county GDP</td>
<td>0.510***</td>
<td>0.0133***</td>
<td>0.450***</td>
<td>0.00795***</td>
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<tr>
<td></td>
<td>(0.0283)</td>
<td>(0.00292)</td>
<td>(0.0261)</td>
<td>(0.00242)</td>
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<tr>
<td>Two decade lag of log county GDP</td>
<td>0.0545***</td>
<td>-0.00124</td>
<td>0.0631***</td>
<td>-0.000469</td>
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<tr>
<td></td>
<td>(0.0122)</td>
<td>(0.00162)</td>
<td>(0.00969)</td>
<td>(0.00128)</td>
</tr>
<tr>
<td>Decade lag of weighted Trust</td>
<td>1.039***</td>
<td>0.486***</td>
<td>0.566***</td>
<td>0.400***</td>
</tr>
<tr>
<td></td>
<td>(0.174)</td>
<td>(0.0693)</td>
<td>(0.144)</td>
<td>(0.0725)</td>
</tr>
<tr>
<td>Two decade lag of weighted Trust</td>
<td>0.643***</td>
<td>0.198***</td>
<td>0.592***</td>
<td>0.184***</td>
</tr>
<tr>
<td></td>
<td>(0.152)</td>
<td>(0.0248)</td>
<td>(0.128)</td>
<td>(0.0202)</td>
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<tr>
<td>Year X State FE</td>
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<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>County group FE</td>
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<td>F-test for joint significance</td>
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<tr>
<td>Lags county GDP</td>
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<td>11.10</td>
<td>249.0</td>
<td>5.563</td>
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<td>Lags Trust or 1870 GDP</td>
<td>32.38</td>
<td>82.29</td>
<td>20.40</td>
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