

Age at Arrival, English Proficiency, and Social Assimilation among U.S. Immigrants

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among U.S. **Childhood** Immigrants

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Motivation 1

- **Some facts:**
 1. ~ 1 in 5 children in US is child of an immigrant
 2. Children of immigrants will be rising share of the population for years to come
 3. Many in homes in which English is not spoken
 4. In the 1990s, US enrollment grew 24%; LEP enrollment grew 105%
- **Childhood immigrants as a bridge**
- **Age at arrival to the US**
 - culture, education, health, etc.

Motivation 2

- Culture versus Constraints
- Case in point: English-language proficiency
- Critical period of language acquisition

Critical Period in Language Acquisition

- Younger children learn new languages more easily than older children.
- Consider foreign-born children who follow their parents to the US. Those who arrive at a younger age (low age at arrival) will be able to learn English more easily.
 - Psychobiological foundations: Lenneberg (1967), Newport (2002)
- Can't attribute all age-at-arrival effects to language. Use immigrants from English-speaking countries as comparison.
- Our instrument is an *interaction* between age at arrival and country of origin. (We first used this in Bleakley and Chin (2004).)

Outline of talk

1. Motivation
2. Related literature
3. Empirical framework
4. Data
5. Results
6. Discussion

Related literature

- Papers on the link between English proficiency and marriage outcomes
 - Stevens and Swicegood (1987)
 - Davila and Mora (2001)
 - Meng and Gregory (2005)
 - Duncan and Trejo (2006)
- Papers on the link between English proficiency and fertility outcomes
 - Sorenson (1988)
 - Swicegood, Bean, Stephen and Opitz (1988)
 - Fernandez and Fogli (2006)
- Papers on the link between English proficiency and residential location outcomes
 - Funkhouser and Ramos (1993)
 - Toussaint-Comeau and Rhine (2004)
 - Lazear (2007)

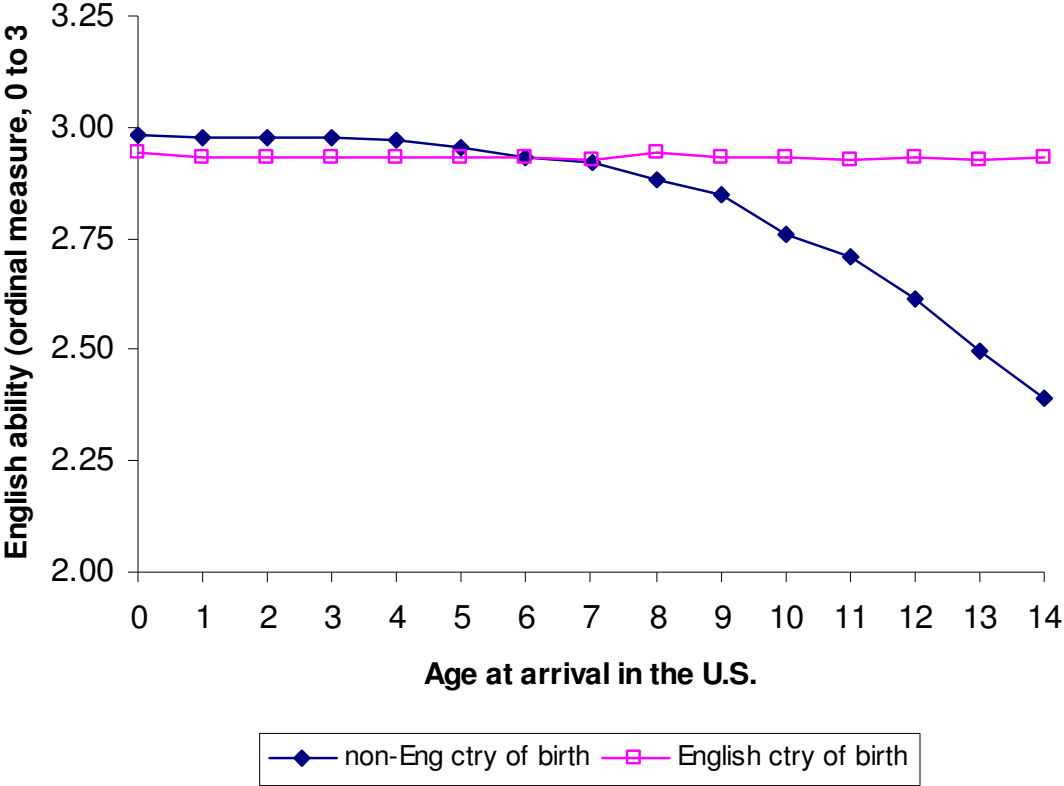
Related literature

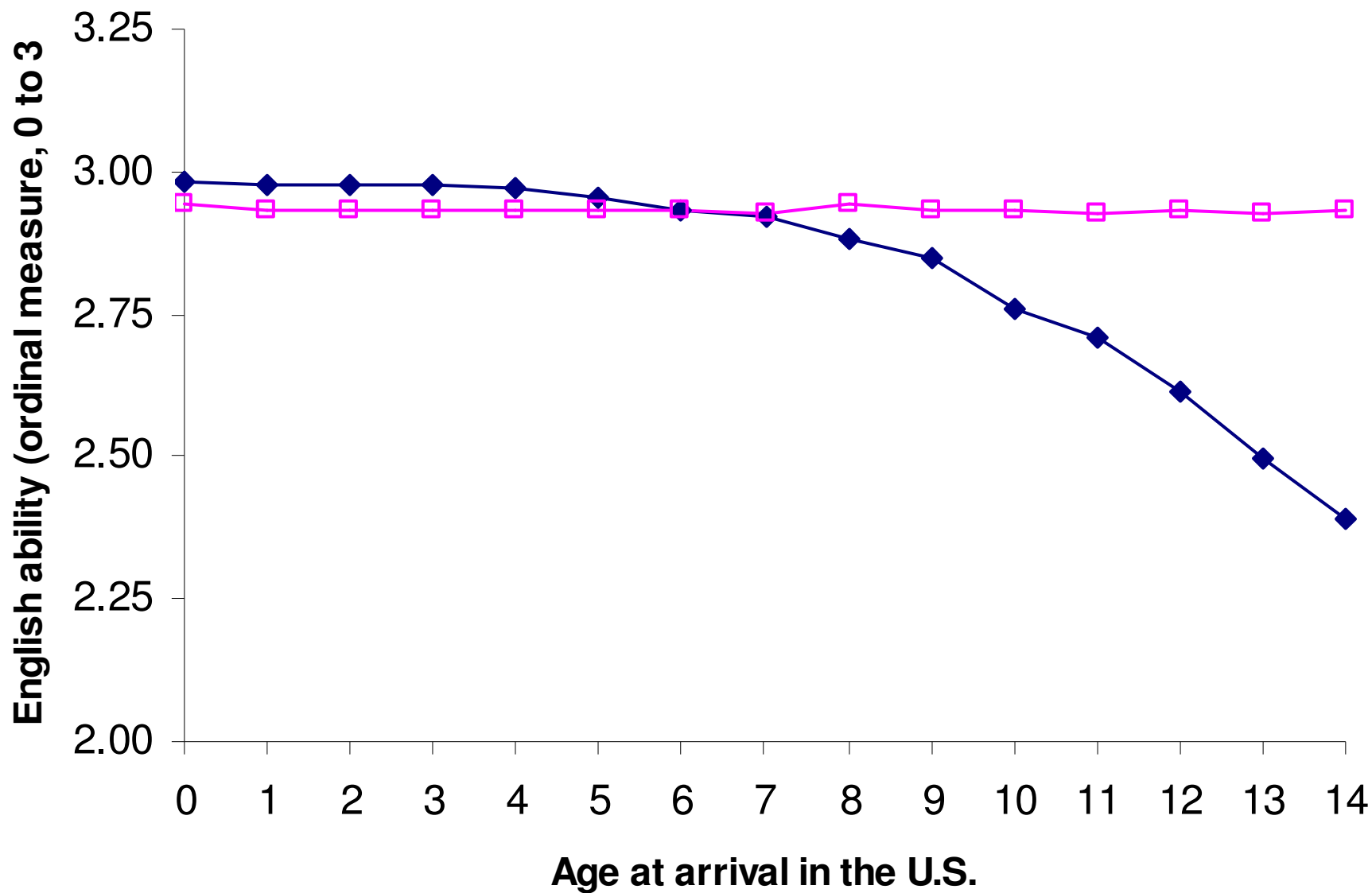
- Contributions of this paper:
 - Examine effect of age at arrival on social outcomes
 - Address problem of endogeneity of language skills in the relationship between language skills and social outcomes (specifically, marriage, fertility and residential location)
 - Examine a broader set of marriage outcomes
 - Estimate effects on a number of social outcomes using the same data and estimation framework

Data

- 2000 IPUMS
- Start with all childhood immigrants currently aged 25-55
 - Age at arrival = current age – (2000 - year of arrival)
 - We use age at arrival < 15
- Divide sample into individuals from non-English-speaking countries of birth and English-dominant countries
- Census language question: “How well does this person speak English? ” with the four possible responses “very well,” “well,” “not well” and “not at all.”
- To capture all the variation in English-speaking ability, we use an ordinal measure
 - = 0 if speaks “not at all”
 - = 1 if speaks “not well”
 - = 2 if speaks “well”
 - = 3 if speaks “very well” or does not report speaking a language other than English at home

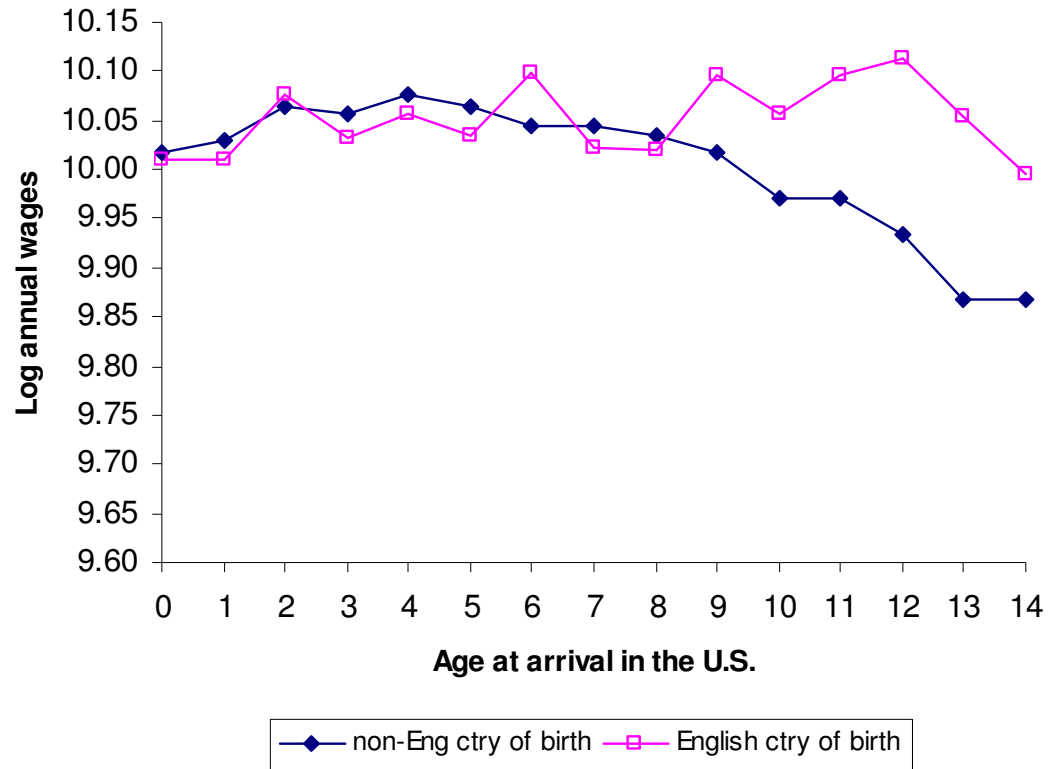
English-Speaking Ability by Age at Arrival and Country of Origin

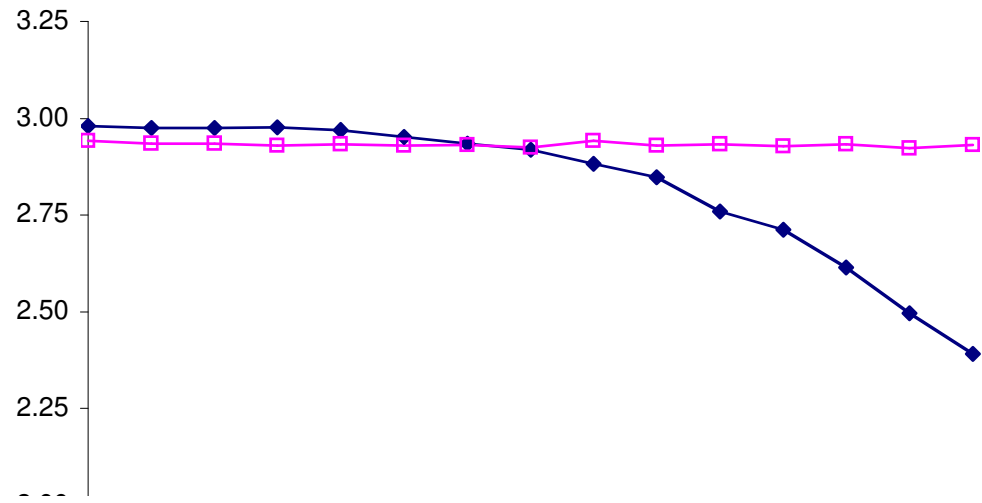




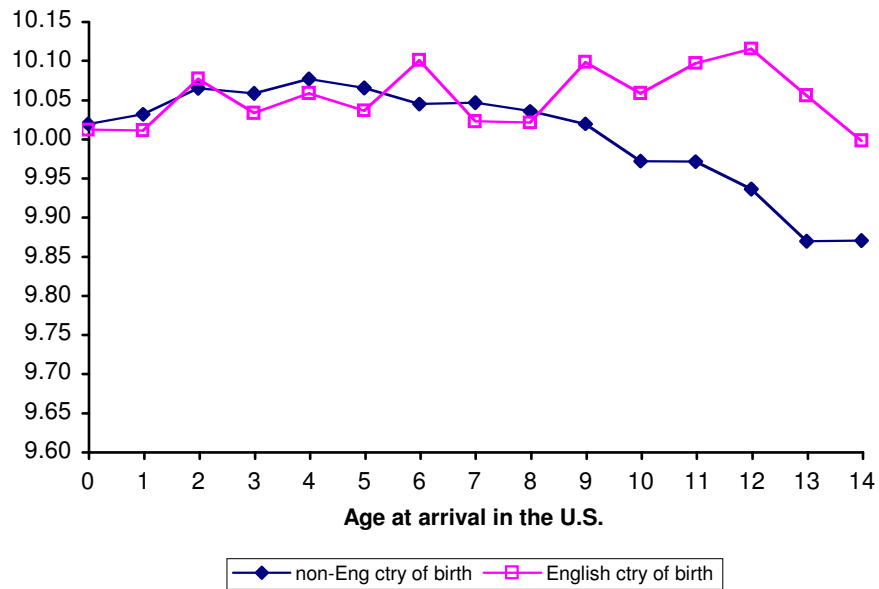
—◆— non-Eng ctry of birth —□— English ctry of birth

Previous Work: Wages by Age at Arrival

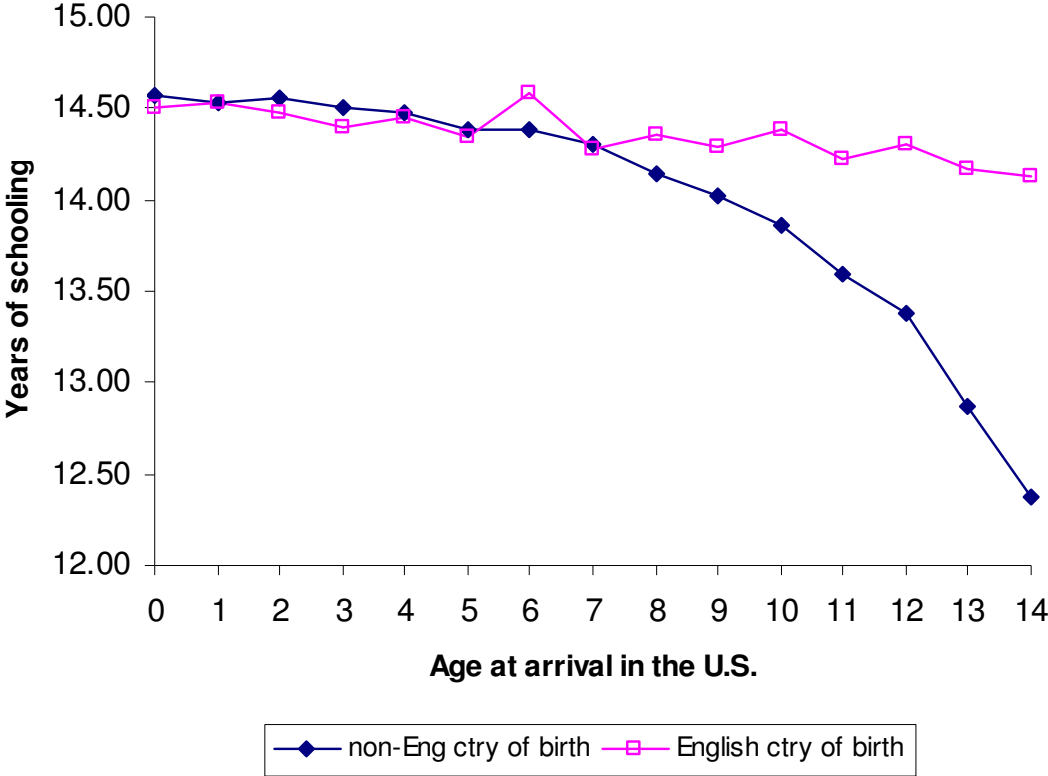




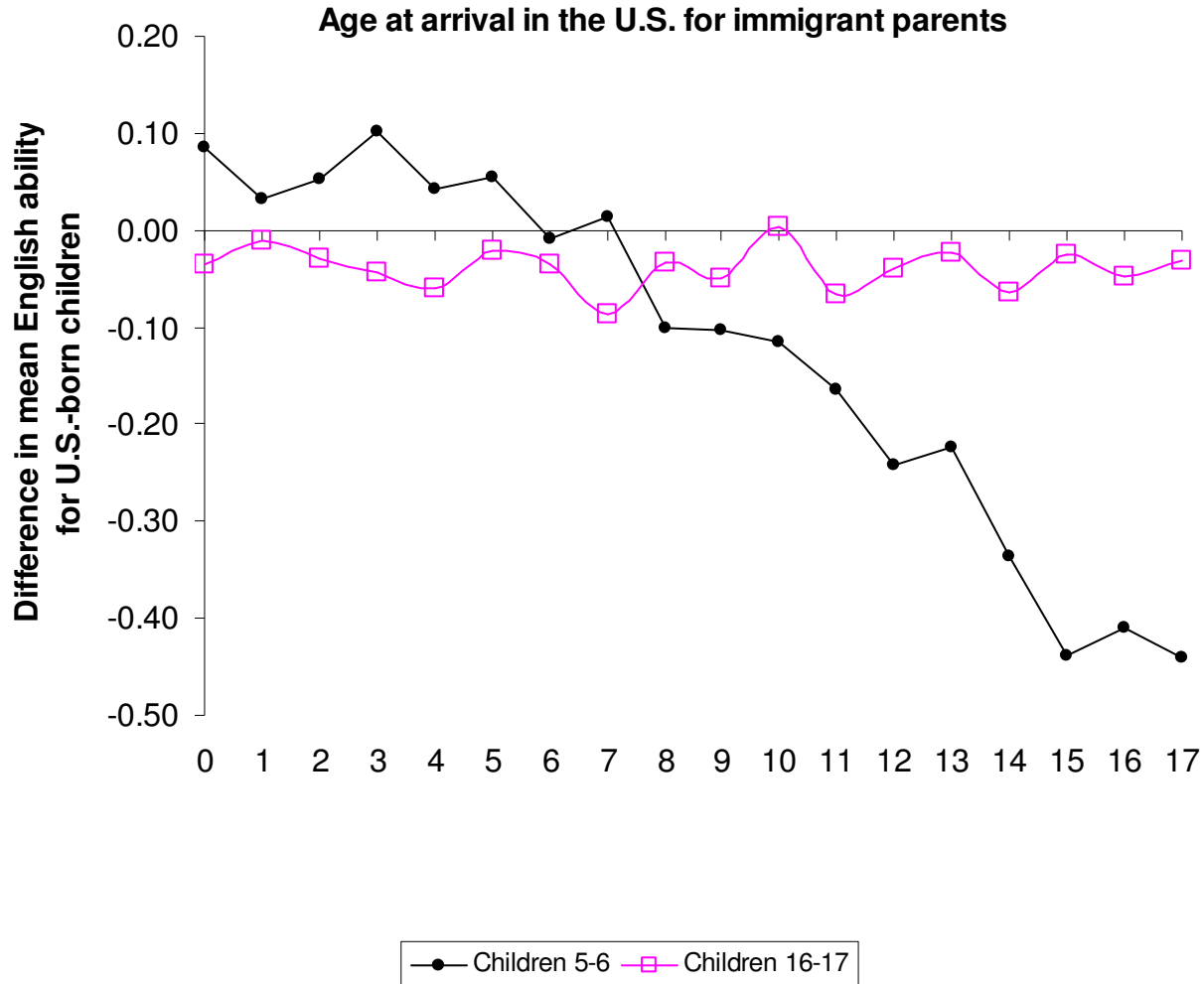
Income by Age at Arrival



Previous Work: Schooling by Age at Arrival



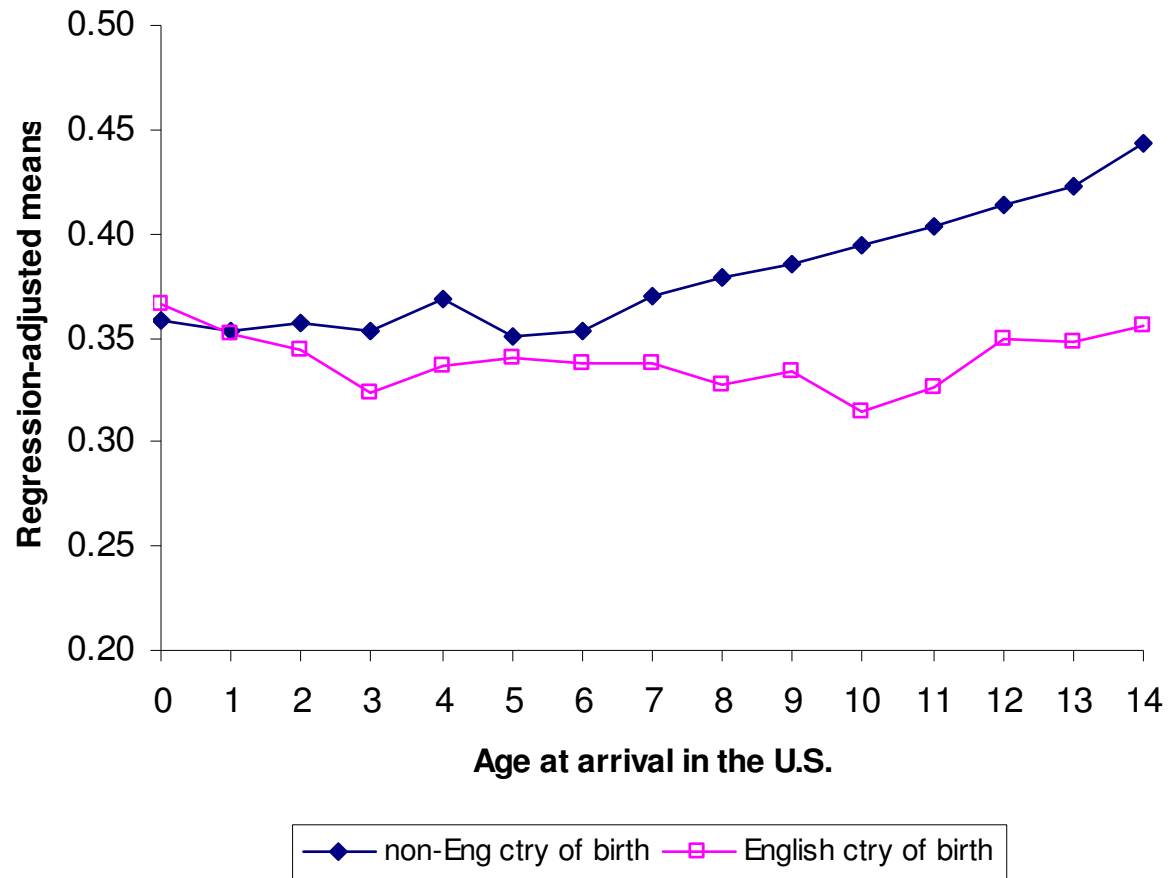
Previous Work: Children's English Proficiency by Parent's Age at Arrival



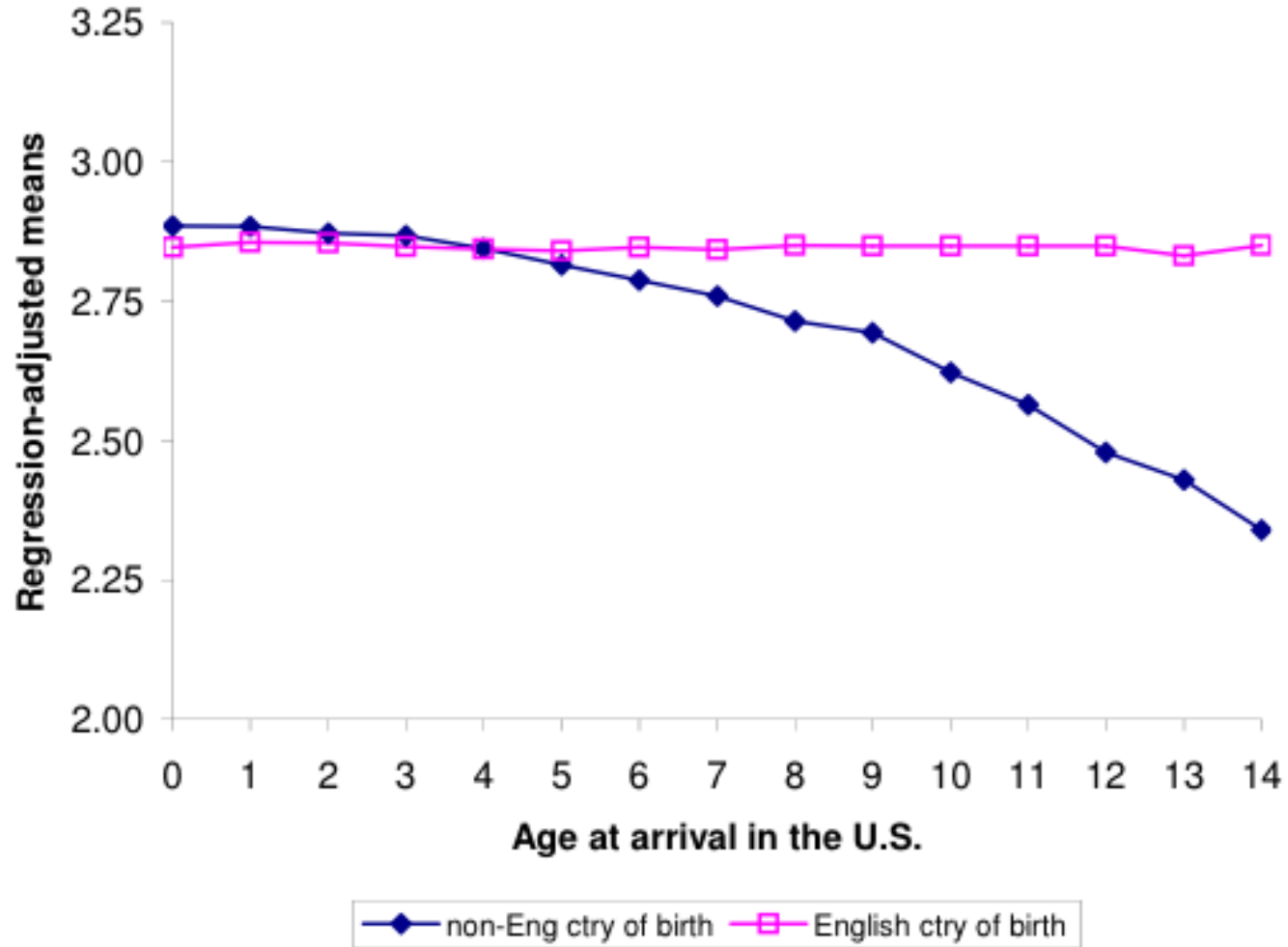
This presentation: Social Outcomes

- Marriage
- Spousal outcomes (“sorting”)
- Fertility
- Residence (“enclaves”)

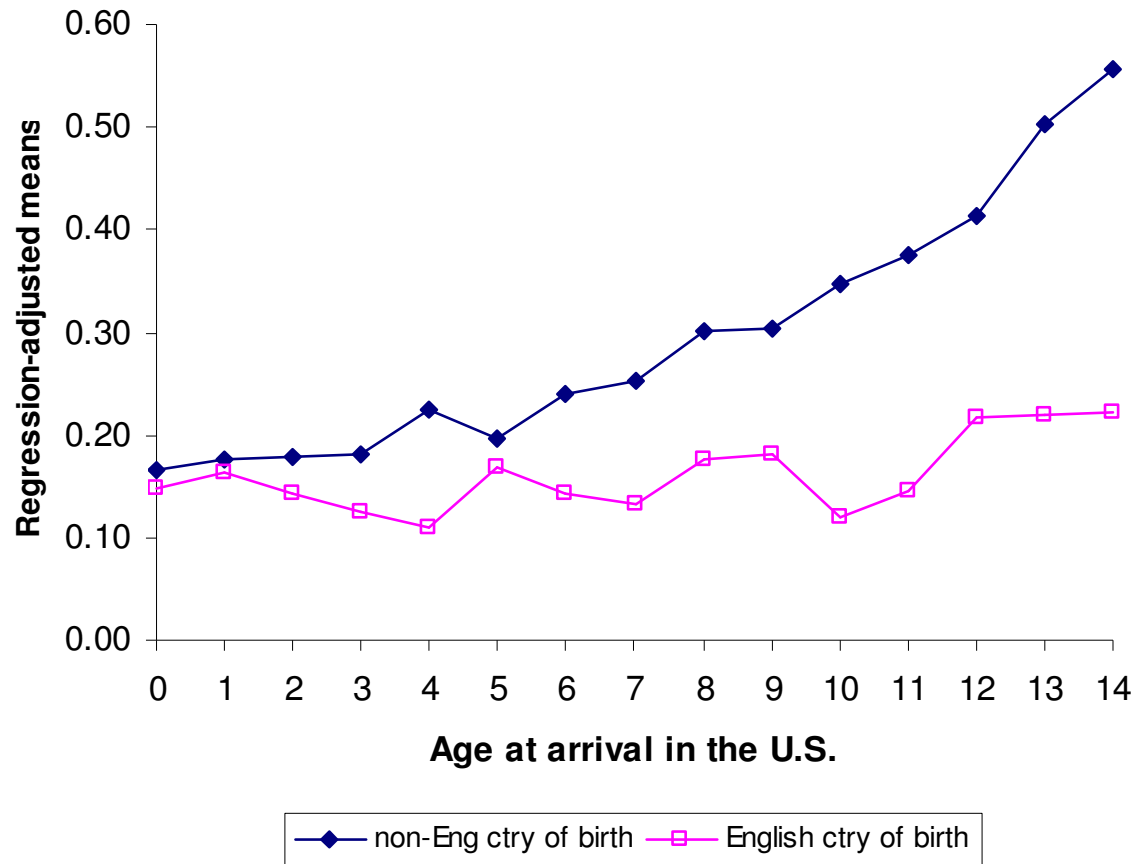
Currently Married with Spouse Present by Age at Arrival



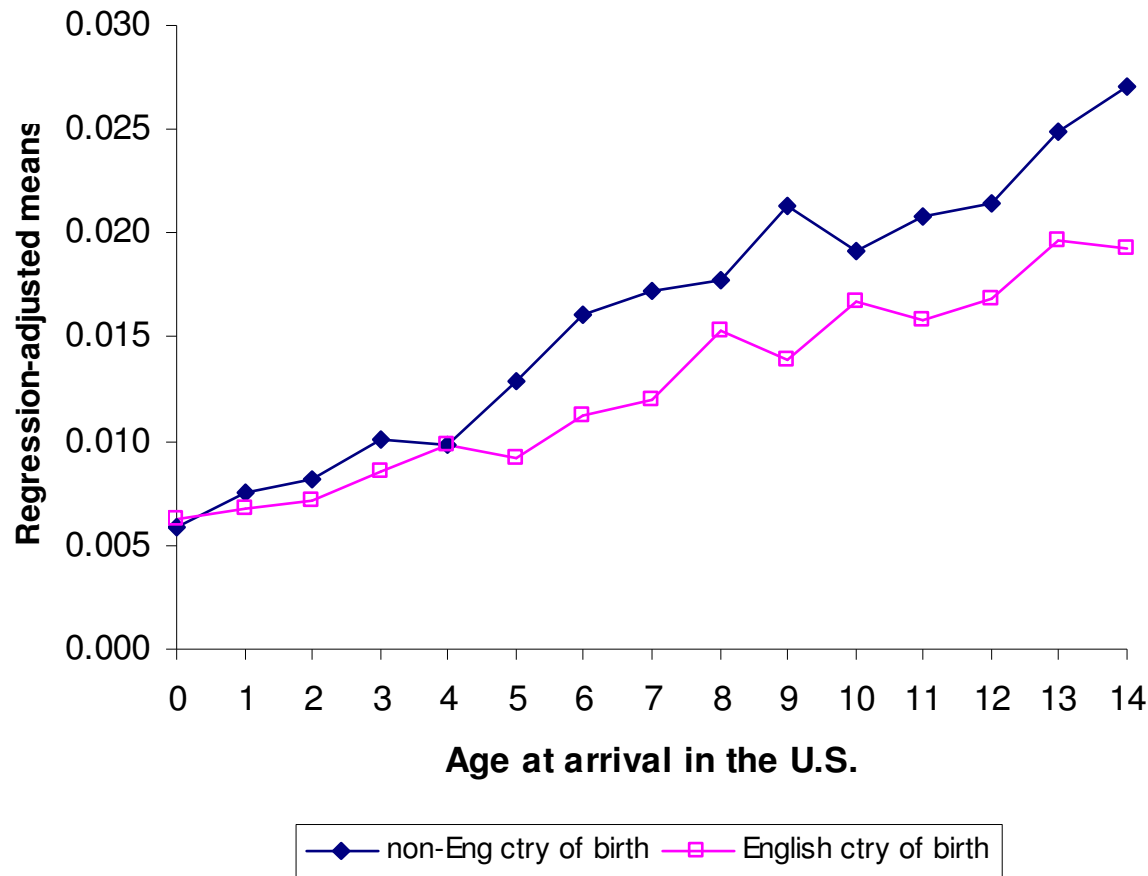
Spouse's English-Speaking Ability by Age at Arrival



Number of Children Living in Same Household by Age at Arrival



Fraction of PUMA Population from Same Country of Birth by Age at Arrival



Reduced-form Estimation

- Equation of interest:

$$y_{ija} = \alpha + \beta \text{ENG}_{ija} + \delta_a + \gamma_j + \mathbf{w}_{ija}'\rho + \varepsilon_{ija}$$

for individual i born in country j arriving to the US at age a

- The identifying instrument:

$$k_{ija} = \max(0, a-9) * I(j \text{ is a non-English-speaking country})$$

(we have used other parameterizations too, with similar results)

- The first-stage equation:

$$\text{ENG}_{ija} = \alpha_1 + \pi_1 k_{ija} + \delta_{1a} + \gamma_{1j} + \mathbf{w}_{ija}'\rho_1 + \varepsilon_{1ija}$$

- The reduced-form equation:

$$y_{ija} = \alpha_{\text{RF}} + \pi_{\text{RF}} k_{ija} + \delta_{\text{RF } a} + \gamma_{\text{RF } j} + \mathbf{w}_{ija}'\rho_{\text{RF}} + \varepsilon_{\text{RF } ija}$$

Table 2—Reduced-form Effects

Dependent variable	Coefficient for identifying instrument
Panel A: English Proficiency Measures	
1. Speaks English not well or better	-0.0061 ** (0.0031)
2. Speaks English well or better	-0.0293 ** (0.0124)
3. Speaks English very well	-0.0689 *** (0.0135)
4. English-speaking ability ordinal measure	-0.1043 *** (0.0288)

Table 2—Reduced-form Effects

Panel B: Marital Status

1. Is currently married with spouse present	0.0112 *** (0.0040)
2. Is currently divorced	-0.0054 *** (0.0018)
3. Has ever married	0.0075 *** (0.0026)

Table 2—Reduced-form Effects

Panel C: Spouse's Nativity and Ethnicity

1. Spouse English-speaking ability ordinal measure	-0.0859 (0.0191)	***
2. Spouse is US-born	-0.0342 (0.0113)	***
3. Spouse has the same country of birth	0.0373 (0.0122)	***
4. Spouse has the same ancestry	0.0191 (0.0105)	*

Panel D: Spouse's Age and Education

1. Spouse age	0.0956 (0.0354)	
2. Spouse years of schooling	-0.2493 (0.0721)	***

Panel E: Spouse's Labor Market Outcomes

1. Spouse log(wages last year)	-0.0314 (0.0118)	***
2. Spouse worked last year	-0.0082 (0.0031)	***
3. Both worked last year	-0.0127 (0.0051)	**

Table 2—Reduced-form Effects

Panel F: Fertility

1. Number of children living in same household	0.0460 *** (0.0142)
2. Has a child living in same household	0.0076 ** (0.0039)
3. Number of children living in same household, only individuals married with spouse present	0.0435 *** (0.0139)
4. Has a child living in same household, only individuals married with spouse present	0.0007 (0.0022)
5. Is a single parent	-0.0022 (0.0027)
6. Is a never-married single parent	0.0003 (0.0018)

Table 2—Reduced-form Effects

Panel G: Residential Location

1. Fraction of PUMA population from same country of birth	0.0007 (0.0007)
2. Fraction from same country of birth is above national mean for the country of birth	0.0035 (0.0072)
3. Fraction of PUMA population with same primary ancestry	0.0018 (0.0013)
4. Fraction with same ancestry primary is above national mean for the primary ancestry	0.0027 (0.0066)

IV Estimation

- Equation of interest:

$$y_{ija} = \alpha + \beta \text{ENG}_{ija} + \delta_a + \gamma_j + \mathbf{w}_{ija}'\rho + \varepsilon_{ija}$$

for individual i born in country j arriving to the US at age a

- The identifying instrument:

$$k_{ija} = \max(0, a-9) * I(j \text{ is a non-English-speaking country})$$

- Since the equation is just identified, the 2SLS coefficient is just the indirect least squares coefficient, i.e., π_{RF}/π_1

$\pi_1 \approx -0.1$ so the 2SLS-estimated effect is about 10 times the reduced-form effect and of opposite sign

Robustness Checks

- Key identifying assumption: Immigrants from non-English-speaking countries experience the same non-language age-at-arrival effects as immigrants from English-speaking countries
- But non-language age-at-arrival effects could differ. Anglophone countries...
 - tend to be richer,
 - have better school systems,
 - and their culture and institutions may be more similar to US
- We do the following:
 - Allow age-at-arrival effects to differ by origin-country GDP, fertility, school quality, life expectancy
 - Drop Canada and/or Mexico
 - Allow for region-specific linear trends (but not country-specific)

The Role of Education

- Does education mediate the effects of English proficiency?
 - Elsewhere, we have shown that much of the effect of English proficiency on earnings for childhood immigrants is through the large effect of English proficiency on educational attainment
- Rough idea: control for schooling; how much does English coefficient change?
 - Controlling for education reduces effects of English on spouse's educational and labor-market outcomes substantially
 - ...but does not change effects of English on marital status, spouse's ethnicity and nativity, and fertility (even though education has significant effects on marital status and fertility)

Discussion

- Age at arrival and Critical Period leave their “footprint” in the data
- Working through English proficiency? Better English...
 - Our previous papers:
 - higher wages, more education
 - have children with worse educational outcomes
 - Current paper:
 - more likely be divorced
 - among those married with spouse present, spouse native, higher earning and more educated
 - fewer children
 - less likely to be in enclave, especially for women
- Relation to policy and public debates
 - When/how to target children of immigrants
 - Point system for immigration and age
 - Preferences vs constraints