Replication: Schoellman (2016)

ECON 580
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Schoellman (2016)

Question: Suppose Indochinese refugees came to the U.S. one year late during early childhood, how does this affect their future relative earnings?

Data: 2005-2012 American Community Surveys & 2000 Population Census

- Indochinese refugees: born in Vietnam, Cambodia, or Laos & immigrated to the U.S. during massive outflows.*
- Sample: WAP, positive income (lag), **arrival age**: $aa \in [0, 5]$

Baseline estimation:

$$\mathbf{Y} = \beta \mathbf{X} + \sum_{a} \alpha_a d_a + \sum_{y} \omega_y d_y + \sum_{aa} \sum_{e} \phi_{aa,e} d_{aa,e} + \varepsilon$$

- $\phi_{aa,e}$: level of wages relative to natives in same year, state, and age
- Captures *relative* effect

Identification: Early childhood migration is *exogeneous* to refugees.*

Repli. Results: Schoellman (2016)

Main Finding: No significant differences between Indochinese refugees' adult earnings and natives' earnings, conditioned on 0-5 arrival ages. (slope)

REPLICATION OF TABLE 1: EFFECT OF AGE AT ARRIVAL ON WAGES AND SCHOOLING

	Vietnamese	Chinese	Lao	Hmong	Khmer	Pooled
Dependent var: Wage (log)						
Repl. Estimate	0.0179	-0.0117	-0.0029	0.0425	-0.0118	0.0090
	(0.0224)	(0.0236)	(0.0258)	(0.0351)	(0.0268)	(0.0127)
Observations	800	355	265	160	172	1,752
	(45.66%)	(20.26%)	(15.13%)	(9.13%)	(9.82%)	-
Benchmark: Schoellman (2016)						
Estimate	0.0064	-0.0043	-0.0090	0.0454	0.0116	0.0070
	(0.0156)	(0.0204)	(0.0224)	(0.0268)	(0.0228)	(0.0097)
Observations	1,202	500	384	267	220	2,573
	(46.72%)	(19.43%)	(14.92%)	(10.38%)	(8.55%)	-

Notes: Reported effects control for age, state of residence, gender, and ethnic group fixed effect. Orders follow Schoellman (2016).

- Note that the (negative) adult earning disparity between refugees and natives emerges for older arrival ages (also see Figure 4).

Replication Discussion

Schoellman (2016) provided great evidence on exploring refugees' early childhood window and future outcome, finding no predicting power as *aa* ≤ 5.

- Aligned with large amount of literatures in interventions.
- *Relative* effect comparing to natives, not *aggregate* effects.

Replication Difficulties:

- "I/O Error" even if I used only 10% of natives obs
  - Software: Winstat for Big Job, trying both StataSE 18 & StataMP batch.
  - Crashed & failed to get the full (migrant) sample as in original paper.
  - SSCC said this server interruption is currently unsolved.
- Led to a '*smaller*' sample size (~ 29 Mil), loss of the partial migrant observations, and *larger* standard errors in Table 1 replication.
- **Lesson**: map files to Linux/Z and submit to Slurm for '**long**' tasks.

Extension

Recall the opposite sign for Khmer group in Replication Table 1.

My two cents: maybe early migration (*aa*) is not *that* exogeneous?

- I agree that early migration is not determined by individual.
- **Endogeneity concern**: regional selection – the proximity of the state of residence in home countries to harbors & easier to update migration info.

Alternative approach: Allow for HH *anticipated* immigration

- "Proposed" IV: *Annual marine weather (AWM)* with one lag
  - **Overidentification**: $\phi_{aa,e} : (k = 1); \mathbf{Z} = (AMW_t \ AMW_{t-1}) : (l = 2)$
  - **Relevance**:
    - marine weather impacts age at arrival;
    - lag terms governs the HH immigration decision
  - **Exclusion**: GMM Over-ID test (Check if $\mathbb{H}_0 : \mathbb{E}[Ze] = 0$ holds)

References

Schoellman, Todd. 2016. "Early Childhood Human Capital and Development." *American Economic Journal: Macroeconomics*, 8 (3): 145-74.

_____, ____. 2016. "Early Childhood Human Capital and Development." *Online appendix*.

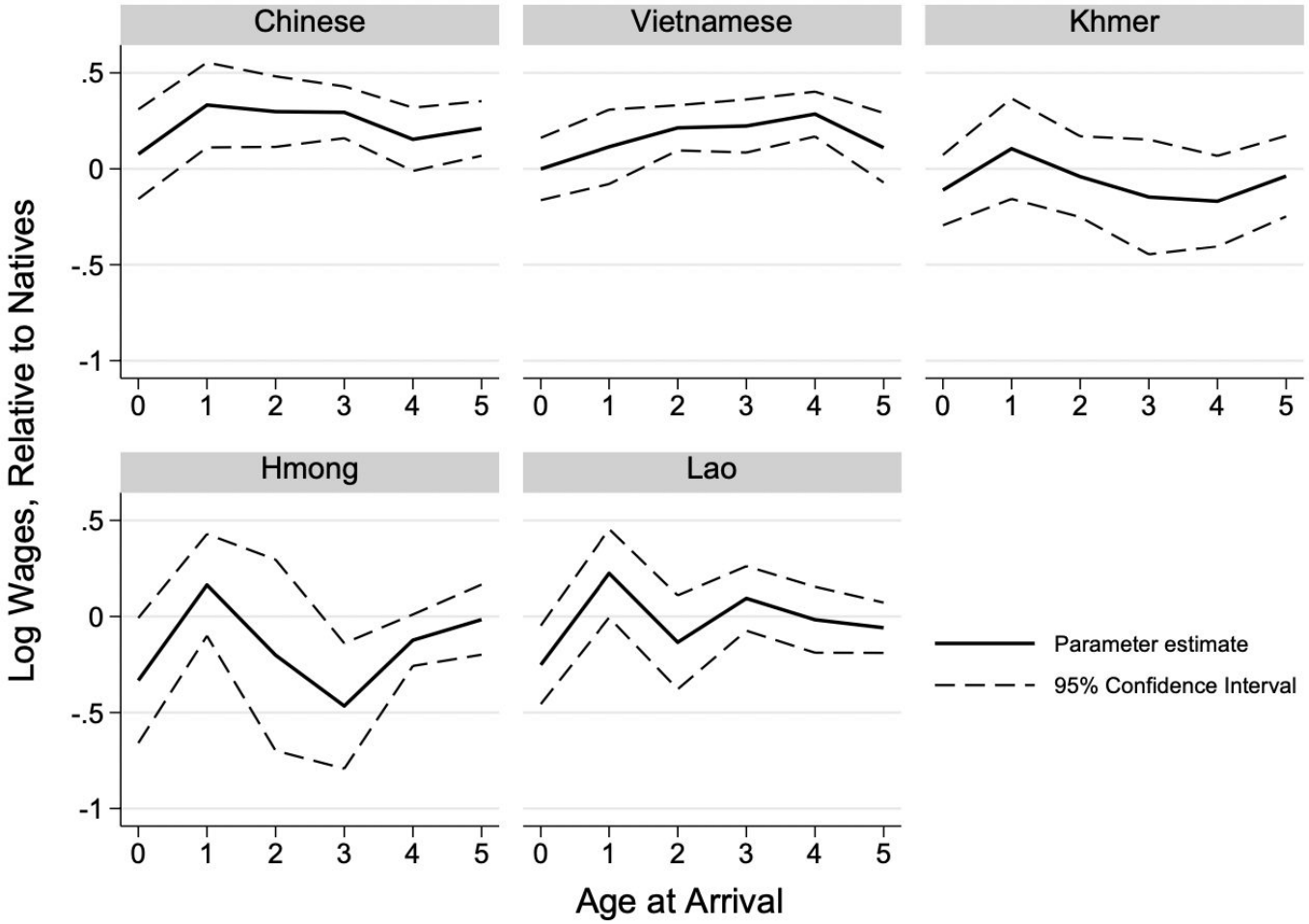
Appendix: Table 1(Full)

Replication of Table 1: Effect of Age at Arrival on Wages and Schooling

	Vietnamese	Chinese	Lao	Hmong	Khmer	Pooled
Dependent var: Wage (log)						
Repl. Estimate	0.0179	-0.0117	-0.0029	0.0425	-0.0118	0.0090
	(0.0224)	(0.0236)	(0.0258)	(0.0351)	(0.0268)	(0.0127)
Observations	800	355	265	160	172	1,752
	(45.66%)	(20.26%)	(15.13%)	(9.13%)	(9.82%)	-
Benchmark: Schoellman (2016)						
Estimate	0.0064	-0.0043	-0.0090	0.0454	0.0116	0.0070
	(0.0156)	(0.0204)	(0.0224)	(0.0268)	(0.0228)	(0.0097)
Observations	1,202	500	384	267	220	2,573
	(46.72%)	(19.43%)	(14.92%)	(10.38%)	(8.55%)	-
Dependent var: yrs of schooling						
Repl. Estimate	0.0545	-0.144	-0.0923	0.1422	0.0894	0.017
	(0.0592)	(0.0984)	(0.1043)	(0.1321)	(0.0677)	(0.038)
Observations	1,285	540	471	258	304	2,858
	(44.96%)	(18.89%)	(16.48%)	(9.03%)	(10.64%)	-
Benchmark: Schoellman (2016)						
Estimate	0.058	-0.113	0.000	0.137	0.125	0.043
	(0.050)	(0.083)	(0.089)	(0.103)	(0.063)	(0.033)
Observations	1,984	757	673	362	461	4,237
	(46.83%)	(17.87%)	(15.88%)	(10.38%)	(10.88%)	-

Notes: Reported effects control for age, state of residence, gender, and ethnic group fixed effect. Orders follow Schoellman (2016).

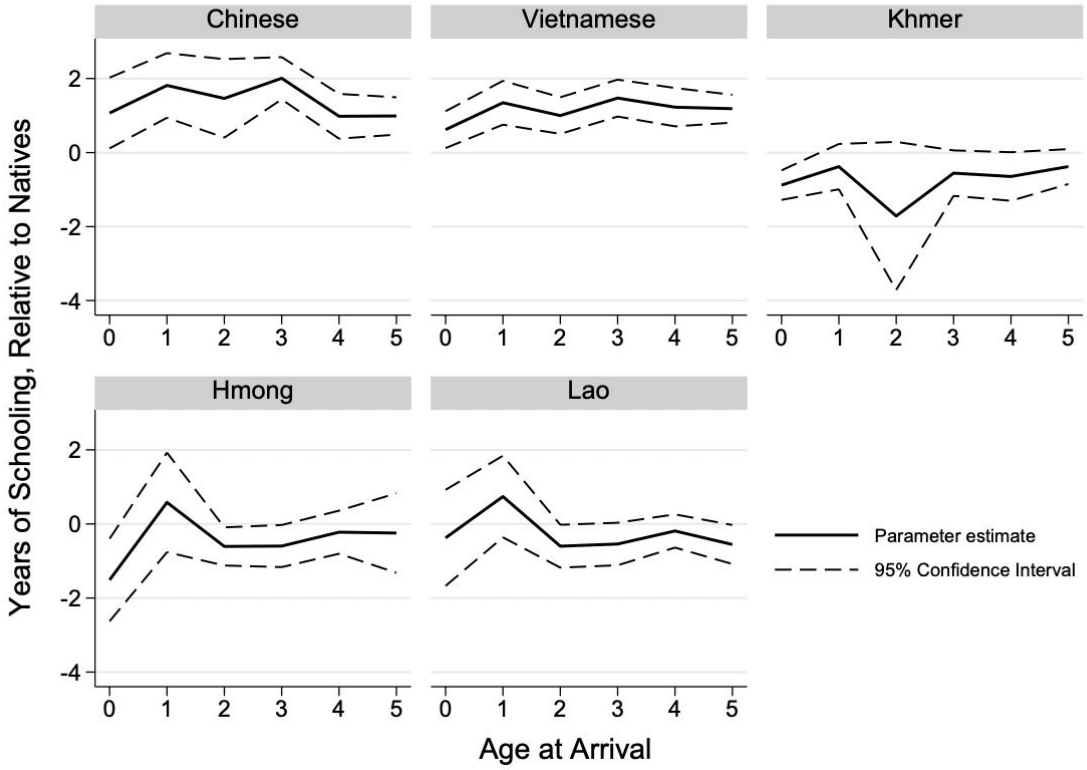
Appendix: Figure 2



Replication of Figure 2: log-Wages by Age at Arrival

Appendix: Figure 3

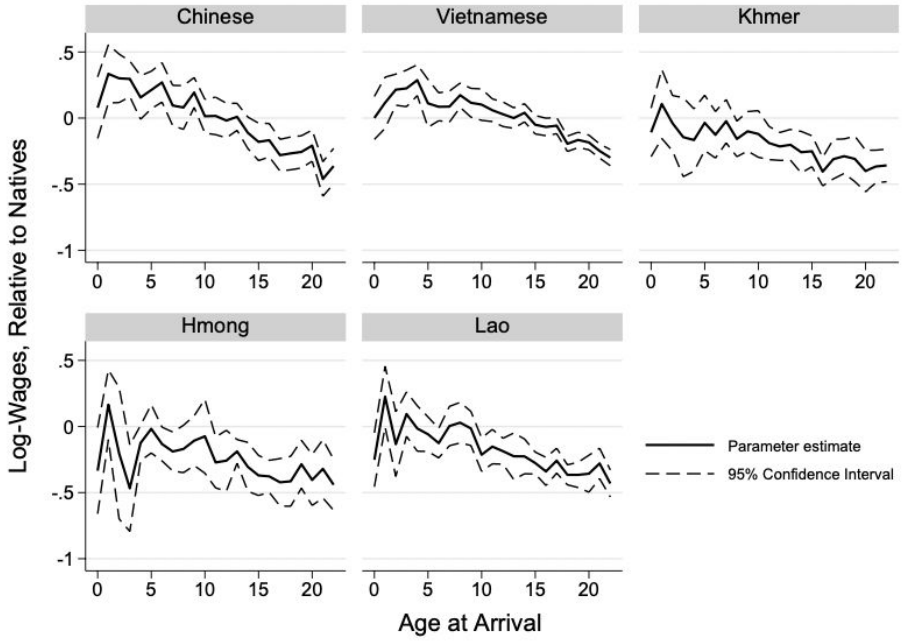
Replication of Figure 3: Years of Schooling by Age at Arrival



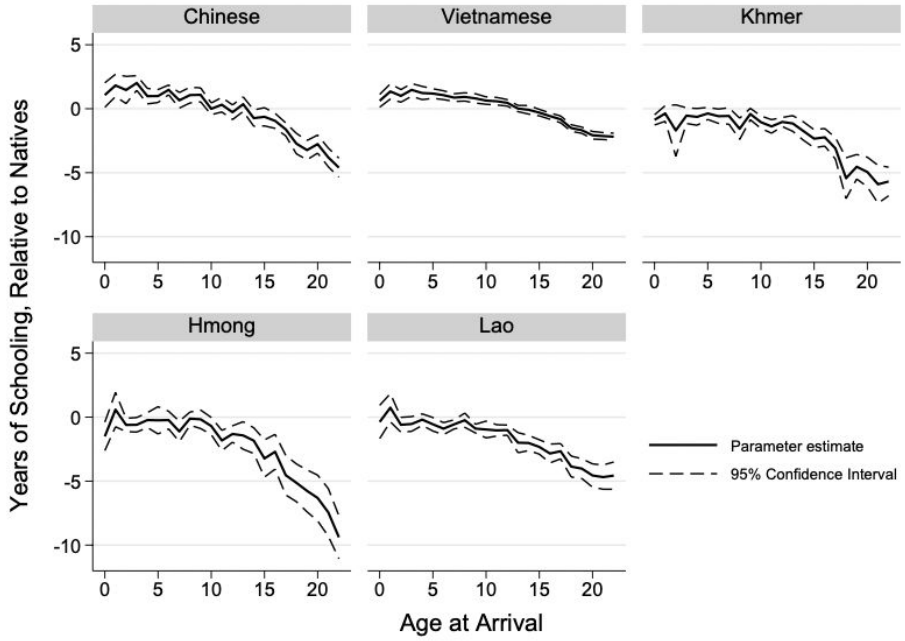
Appendix: Figure 4

REPLICATION OF FIGURE 4: OUTCOMES BY AGE AT ARRIVAL FOR OLDER AGES

Panel A. log-wages



Panel B. Years of schooling



Appendix: Figure 5

REPLICATION OF FIGURE 5: LOG-WAGES BY AGE AT ARRIVAL FOR OTHER IMMIGRANT GROUPS