

Identifying Rates of Emigration in the U.S. using Administrative Earnings Records

Jonathan A. Schwabish
Congressional Budget Office

The views expressed in this paper are those of the author and should not be interpreted as those of the Congressional Budget Office.

Overview

- Understanding migrant flows into and out of the U.S. can help shed light on patterns of immigrant assimilation and different public policies.
 - Health Care
 - Welfare
 - Medicare & Social Security
- Motivation for this project was the large change in the Social Security Trustees' assumption about immigrant and emigrant flows.
- Enhanced modeling of immigrant and emigrant behavior for CBO's Long-Term (CBOLT) microsimulation model.

Modeling Emigration: Basic Challenge

- How to count the number of emigrants in any given year?
- Existing Data
- Existing Research
 - Residual method (Warren & Peck, 1980; Warren & Passel, 1987; Ahmed & Robinson, 1994; Borjas and Bratsberg, 1996)
- Matched CPS data: Van Hook et al (2006)

Modeling Emigration: Residual Method

- Difference two cross-sections of data and incorporate mortality rates:

$$E = P_{1960} - D + M - P_{1970}$$

$$E = P_{1960} - P_{1960} (1-s) + M - P_{1970}$$

$$E = P_{1960} \times s + M - P_{1970}$$

$$E = 170,000 \times 0.9912 + 277,000 - 357,000$$

$$E = 88,504$$

(Warren and Peck, 1980)

Modeling Emigration using Administrative Earnings Data

- Longitudinal administrative data:
 - Detailed Earnings Record (DER)
 - Numerical Identification System (Numident)
 - Master Beneficiary Record (MBR)
 - 1978-2003
 - ages 16-62
 - 1% sample of U.S. population

- Identify foreign born, birth year and death year (Numident), beneficiary status (MBR) and follow pattern of earnings (DER).

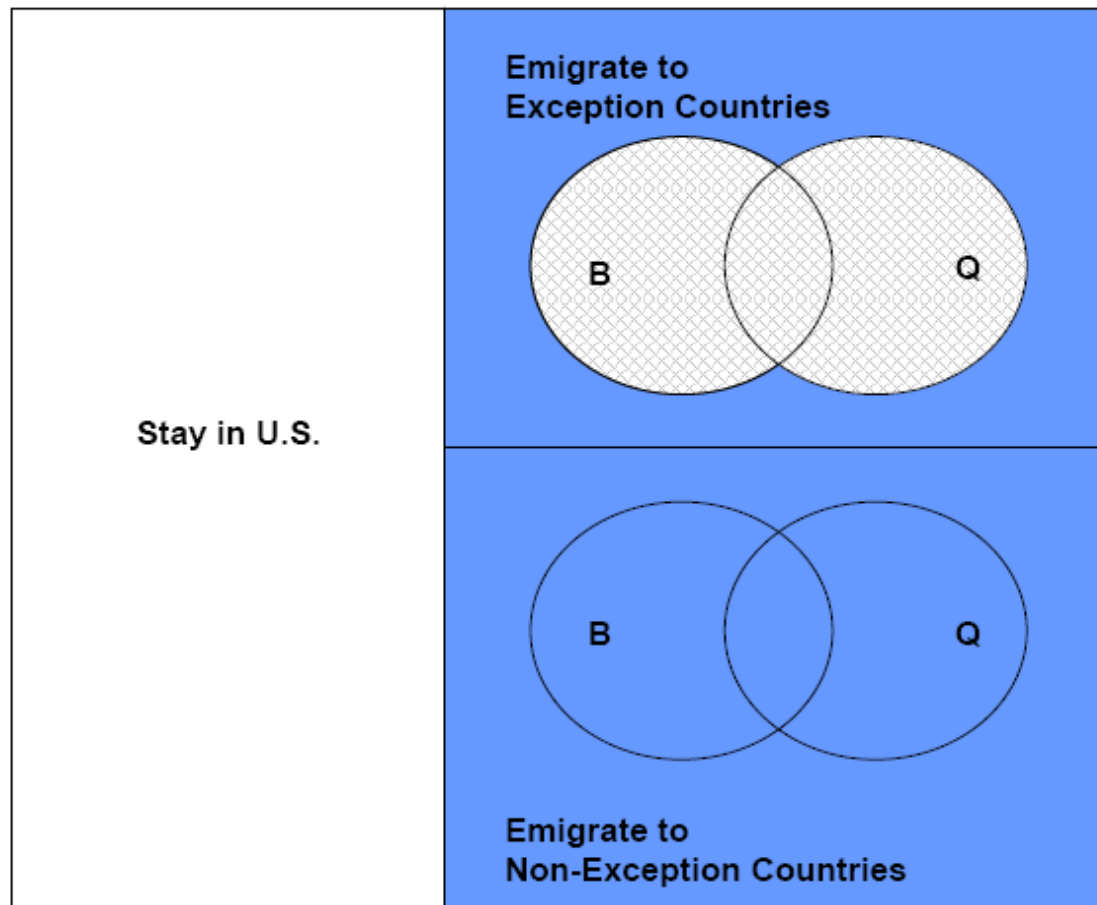
Inferring Emigration

- Emigrants identified as those who have at least one year of positive earnings followed by at least two years of zero earnings.
 - No distinction between missing and zero earnings.

- Possible sources of bias:
 - voluntary/involuntary exit from labor force
 - child bearing, retirement, unemployment, disability
 - back and forth migration
 - illegal immigration
 - stolen/lost Social Security Numbers

- Censoring problem for those with earnings in years leading up to 2001.

Defining Emigration from the U.S. Social Security System



B = Current
Social Security
beneficiary

Q = Quarters of
Coverage ≥ 40

Immigrant's Country of Origin, Percent of Total, 1998

	Administrative Data	Current Population Survey
Asia	26.7	24.4
Europe	17.6	13.2
Mexico	21.3	28.5
Caribbean	10.3	10.4
Central America	6.5	7.8
South America	5.7	6.4
Middle East	3.8	3.0
Africa	3.0	2.2
Canada	2.8	2.2
Other	2.0	1.2
Australia (region)	0.3	0.6
Total	100.0	100.0
Number of Obs.	172,480	8,008
Number of Weighted Obs.	n.a.	14,889,800

Note: Sample includes immigrants ages 16 to 62 with positive earnings in 1998.

Summary Statistics

Emigration from the United States

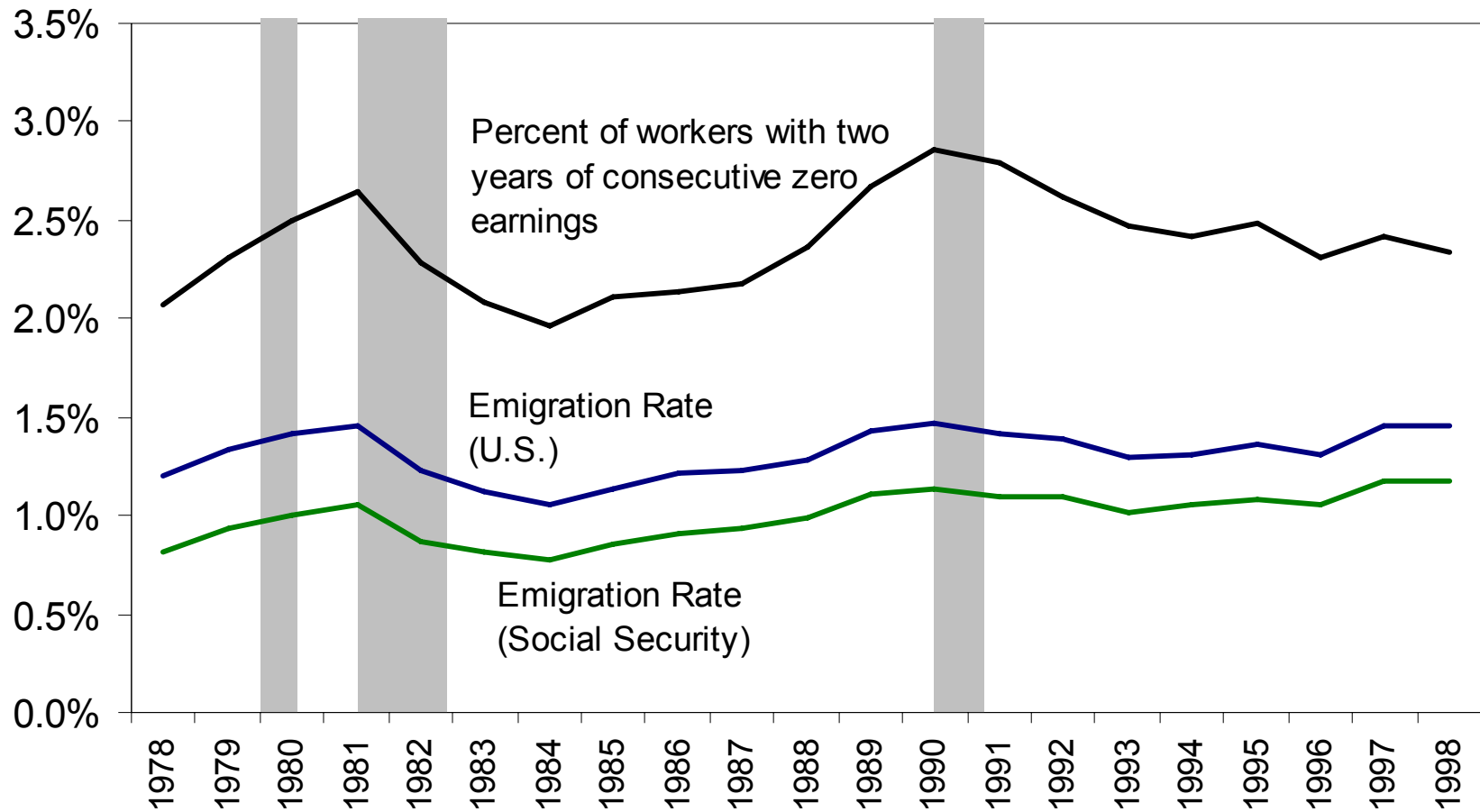
	Nonemigrants	Emigrants
Average Age (years)	37.9	38.0
Average Earnings (dollars)	\$27,713	\$11,617
Percent Men	56%	51%
Number of Obs.	168,422	4,058

Emigration from the U.S. Social Security system

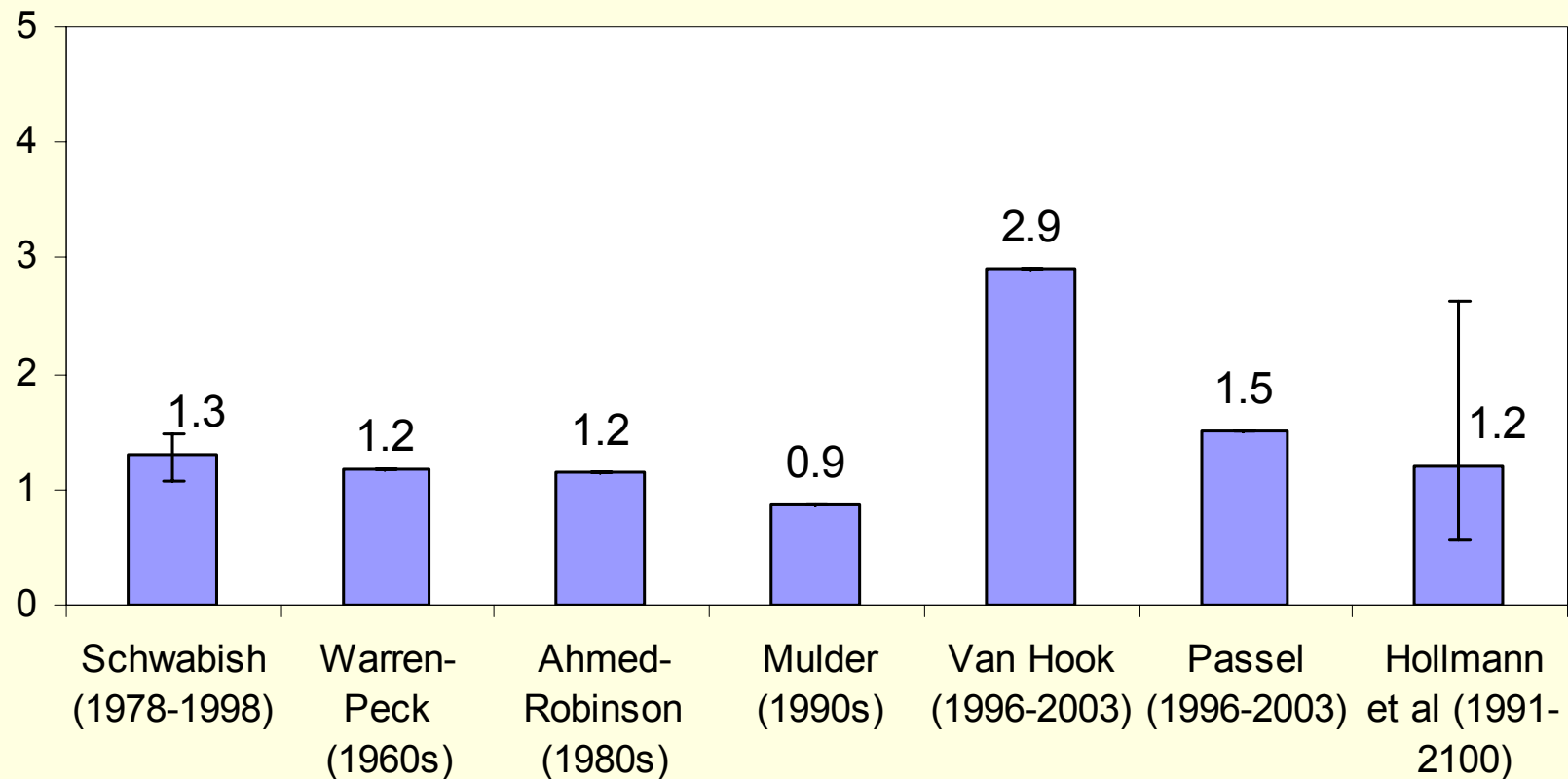
	Nonemigrants	Emigrants
Average Age (years)	37.9	35.9
Average Earnings (dollars)	\$27,646	\$11,248
Percent Men	56%	51%
Number of Obs.	169,198	3,282

Note: Universe limited to immigrants with positive earnings in 1998.

Emigration Rates: 1978-1998



Rates of Emigration Across Studies, All Foreign Born



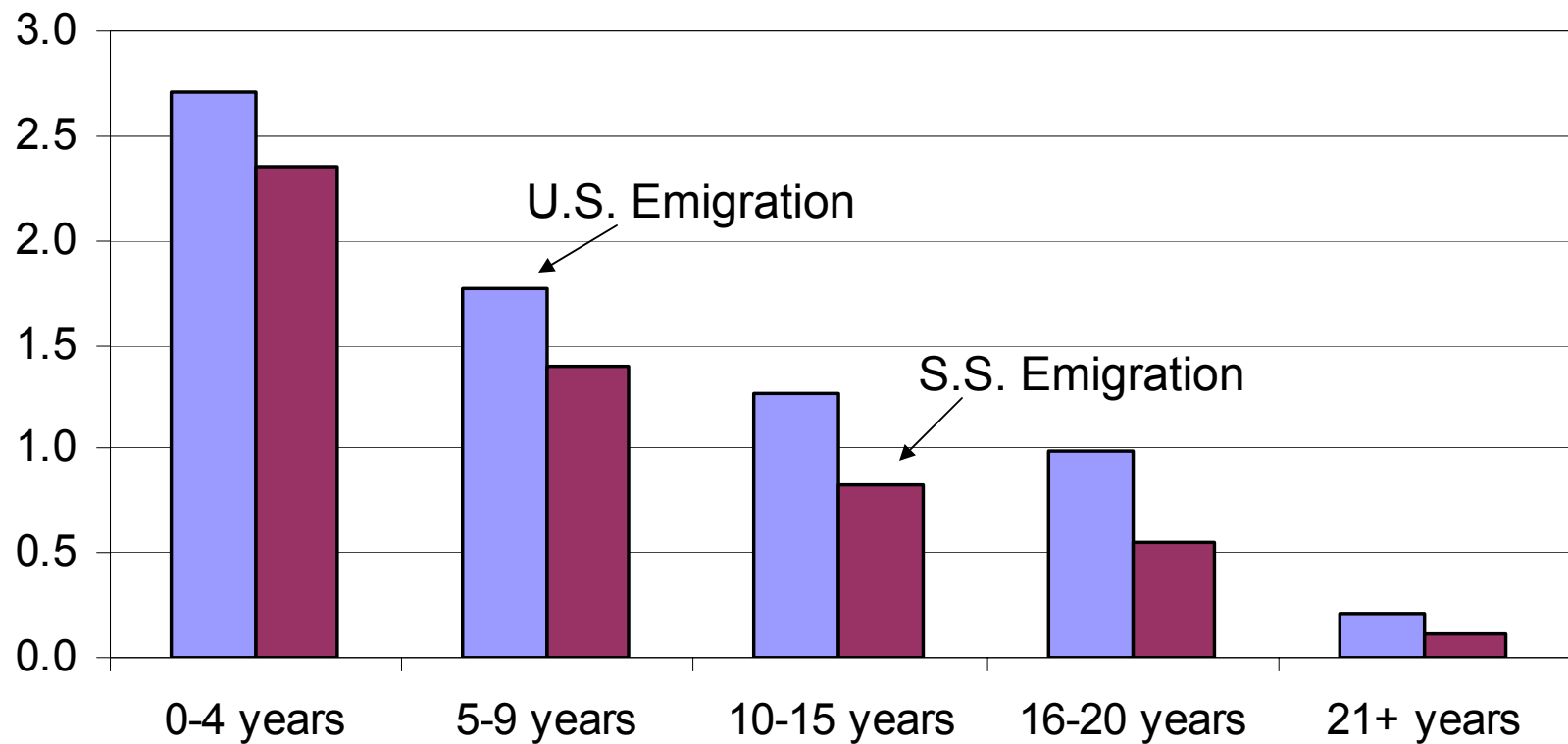
Rates of Emigration, by Sex and Age Group

	Emigration Rate (%)	
	U.S.	Social Security
All Foreign Born	1.31	1.00
Sex		
Men	1.25	0.98
Women	1.39	1.02
Age Group		
16-24	0.69	0.66
25-34	1.25	1.13
35-44	1.49	1.16
45-62	2.31	1.21

Source: Author's calculations from merged Detailed Earnings Record, Numident and Master Beneficiary Record data.

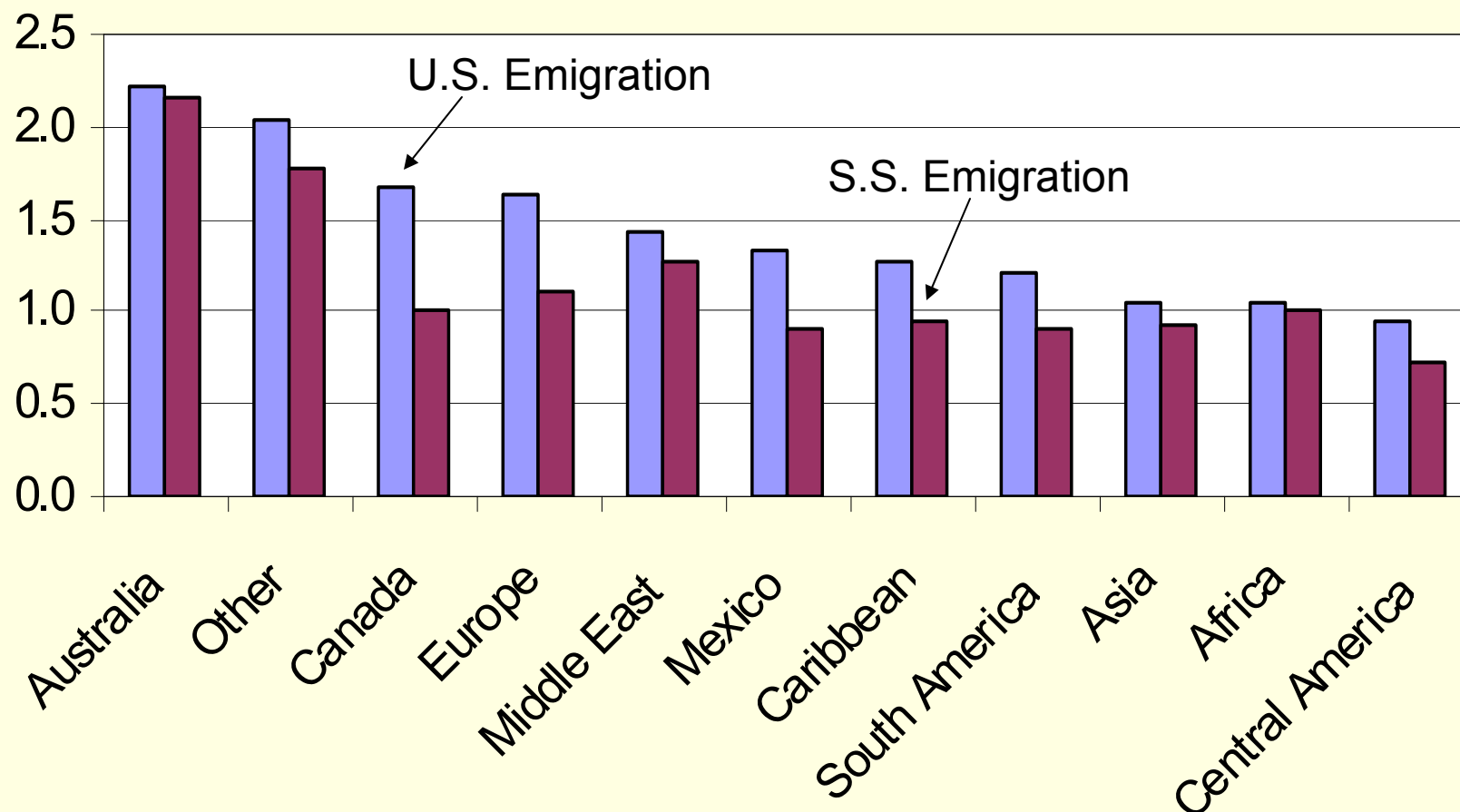
Notes: Figures in the table are averages over 1978-1998 period.

Rates of Emigration, by Years in the U.S.



Source: Author's calculations from merged Detailed Earnings Record, Numident and Master Beneficiary Record data. Figures in the table are averages over 1978-1998 period.

Rates of Emigration, by Country/Region of Origin



Source: Author's calculations from merged Detailed Earnings Record, Numident and Master Beneficiary Record data. Figures in the table are averages over 1978-1998 period.

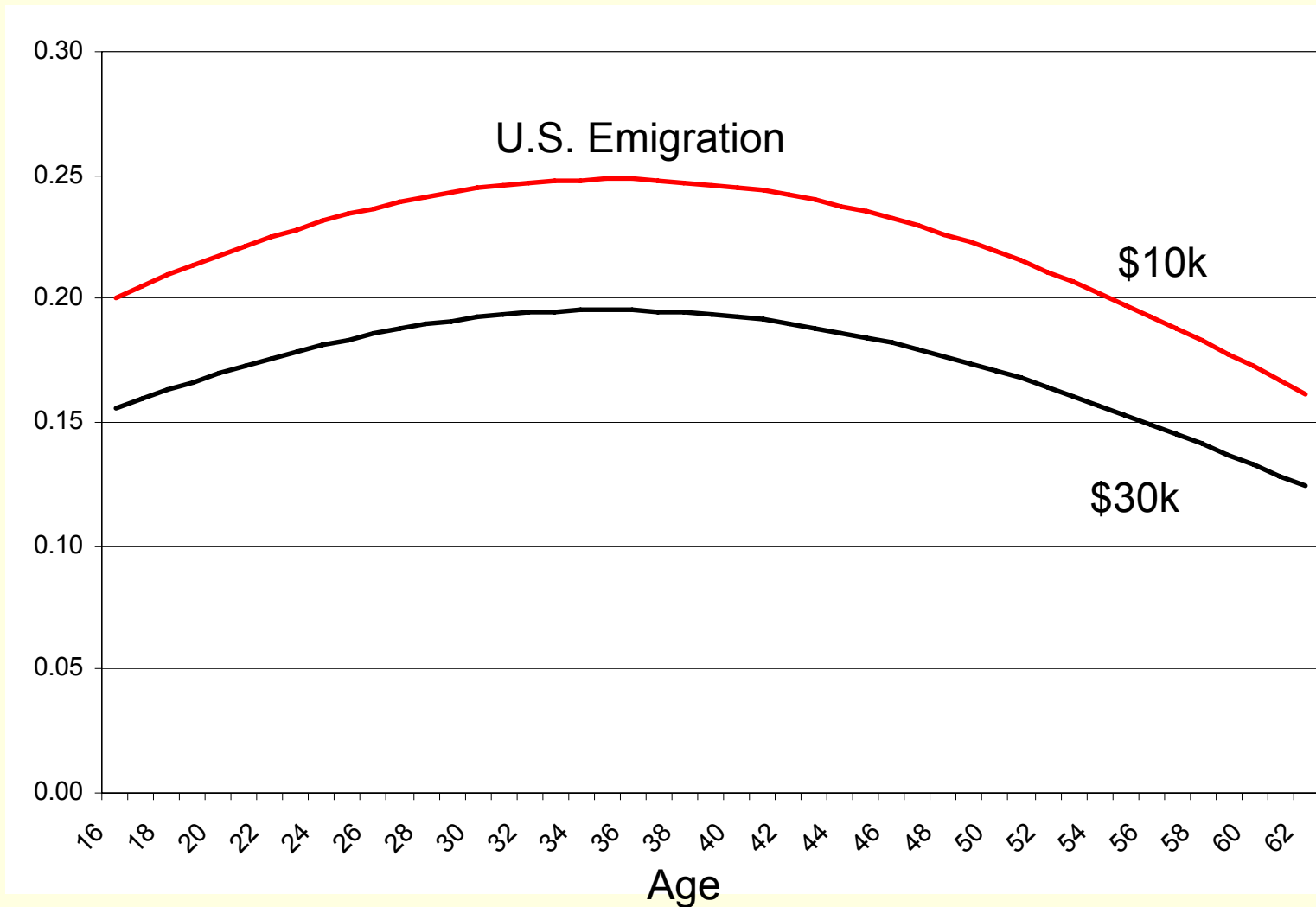
Modeling Emigration

- Aside from age and sex, administrative data contain limited demographic information
- Two models:
 - Probability of *Ever* Emigrating (Logit)
 - Probability of Emigrating *in any year* (Discrete Hazard)

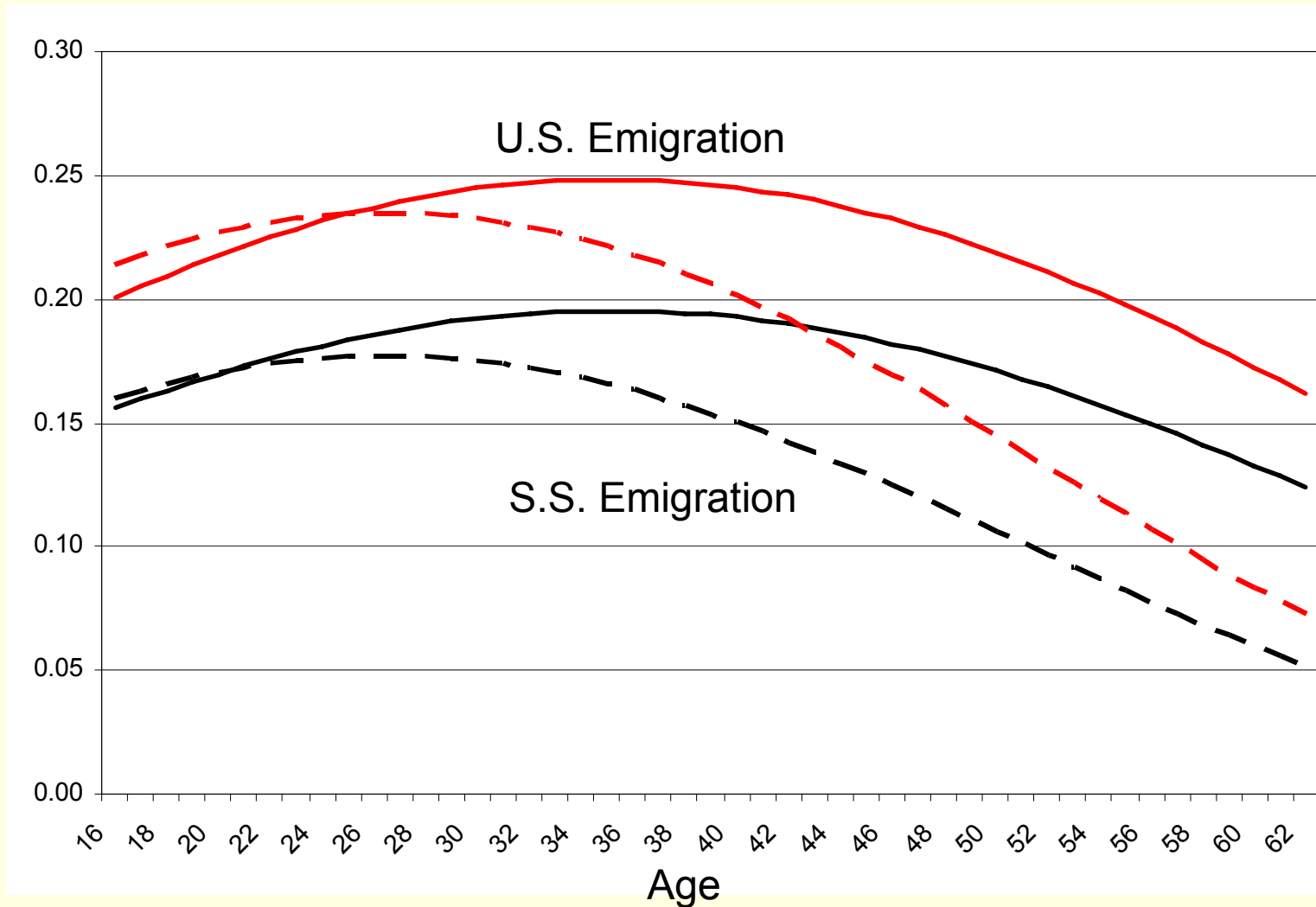
$\text{Pr}(\text{emigration}) = f(\text{age, age-squared, sex, avg. earnings})$

- Additional covariates
 - country/region of origin
 - per capita GDP difference
 - age dummy variables
 - number of years in U.S. dummy variables

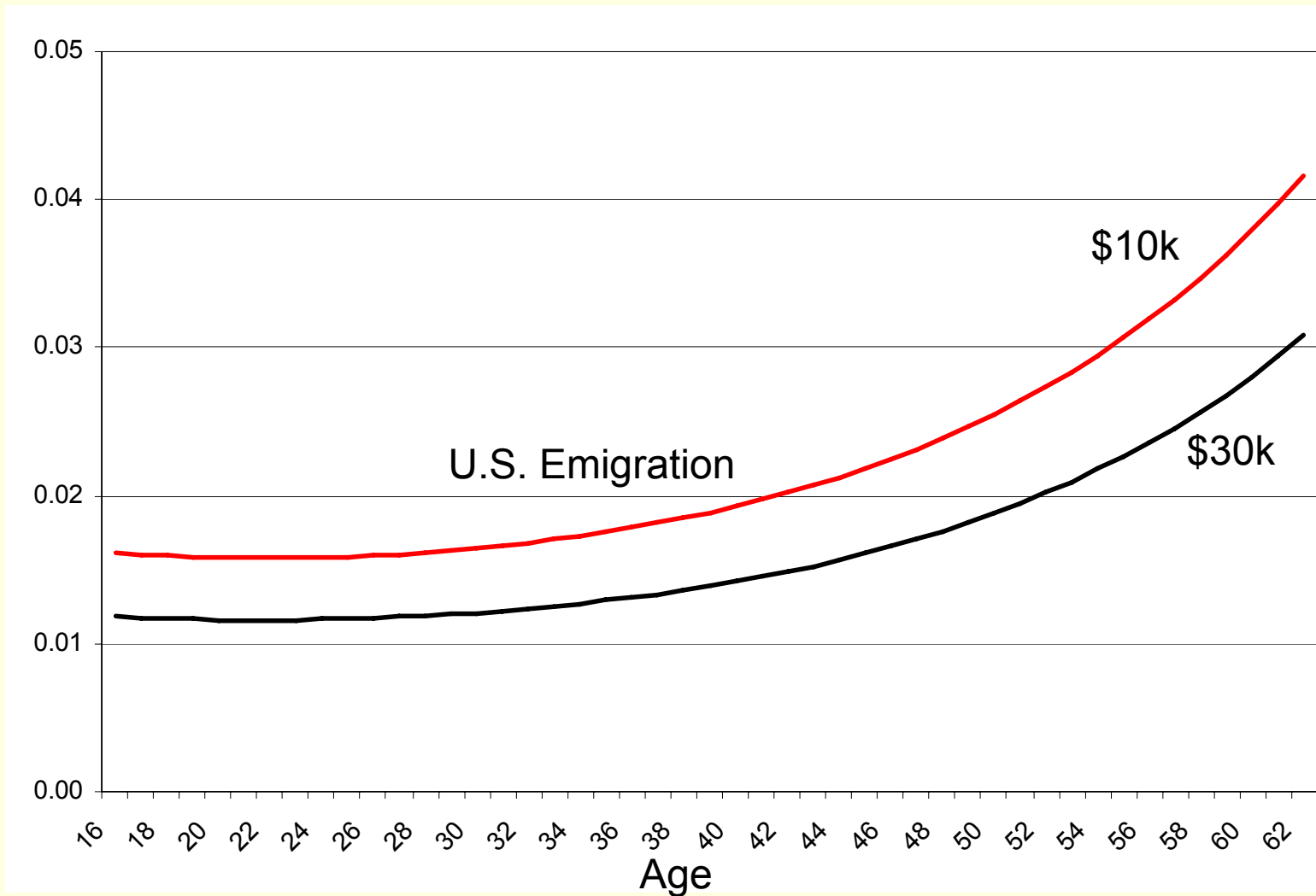
Ever Emigrating by Age: U.S. Emigration, Men \$10k and \$30k



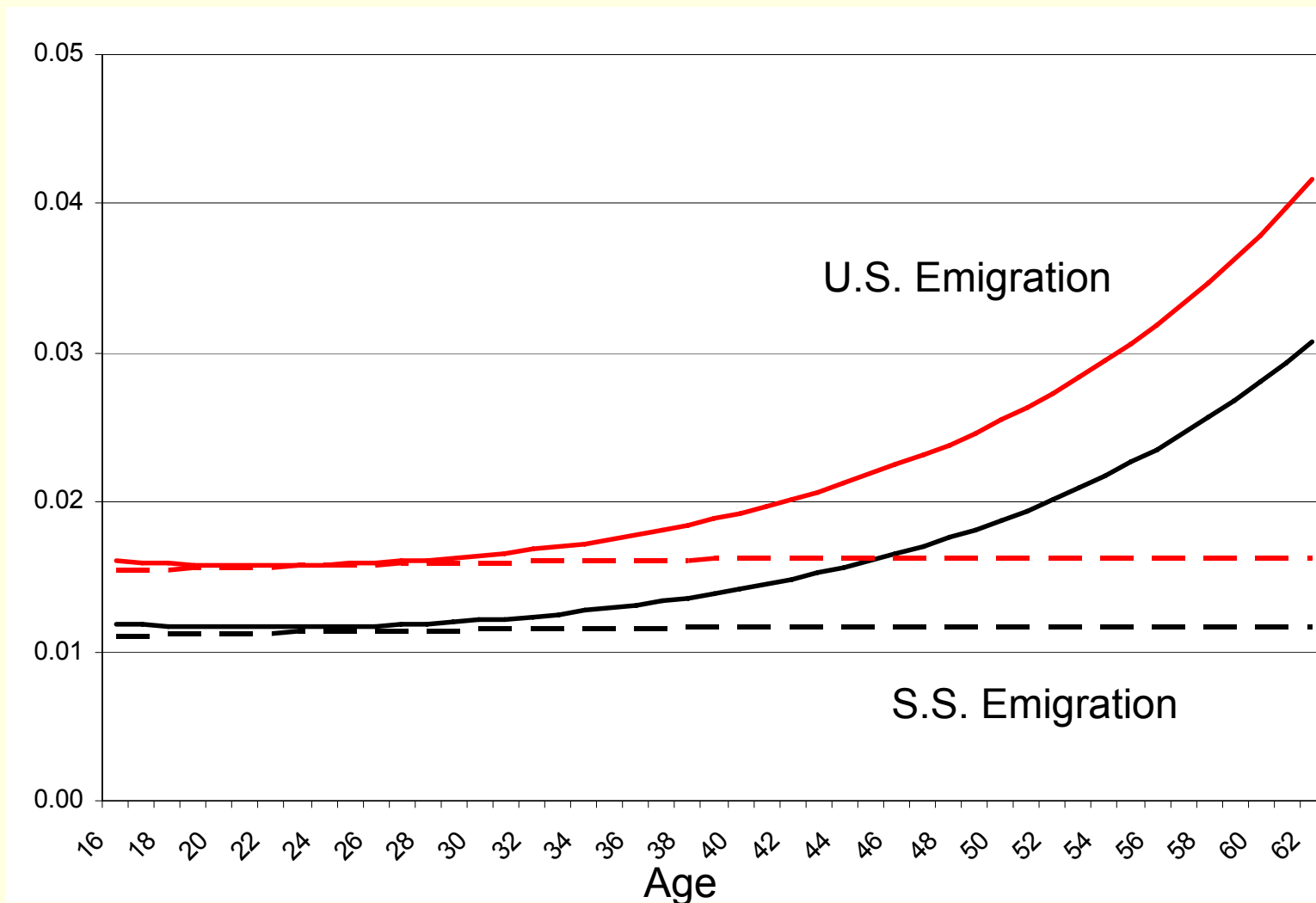
Ever Emigrating by Age: Men \$10k and \$30k



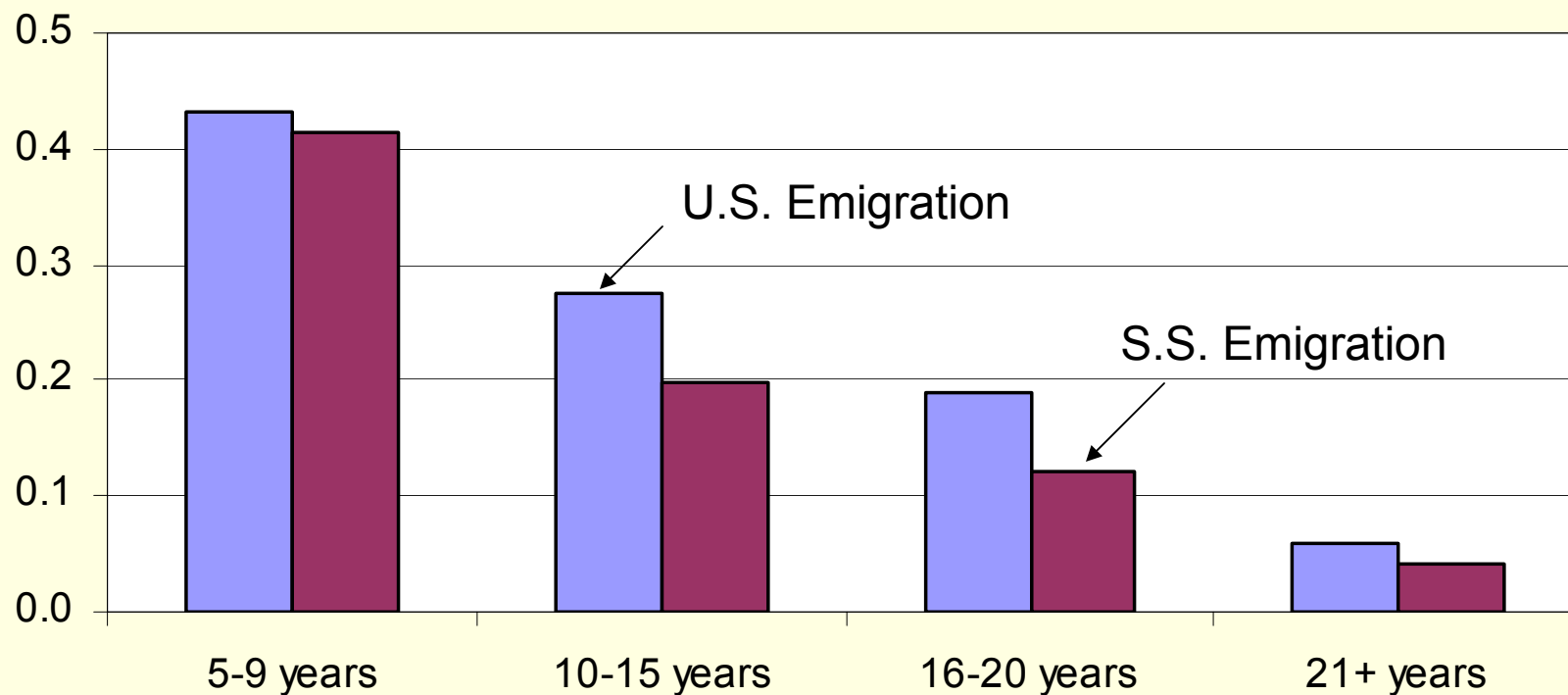
Emigrating *in any year* by Age: U.S. Emigration, Men \$10k and \$30k



Emigrating *in any year* by Age: Men \$10k and \$30k

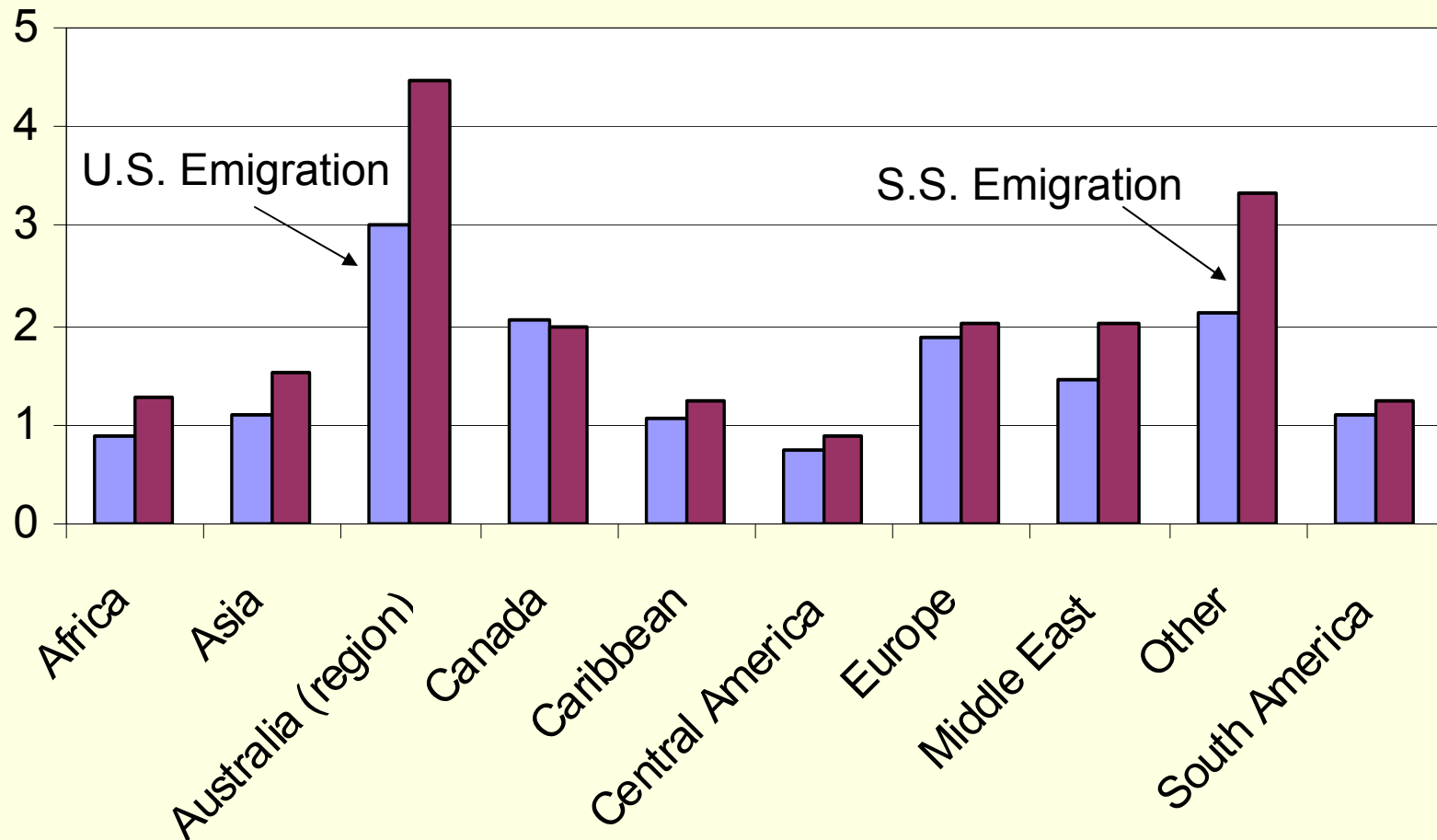


Regression Results: Number of years with earnings in the U.S.



*Regression includes controls for sex, age, age-squared, average earnings

Regression Results: Country of Origin



*Regression includes controls for sex, age, age-squared, average earnings

Conclusion

- Estimating rates of emigration is made difficult by lack of data that follows people from one country to another.
- Residual method fails to incorporate information at the individual level.
- First paper to use individual, longitudinal data to infer rates of emigration.

Conclusion

- Results are similar to those found elsewhere in the literature.
 - Annual emigration rate of about 1.3 percent or about 300,000 people
 - 0.9 percent emigration rate from Social Security system

- Regression models suggest emigrants are more likely to
 - have lower earnings
 - be men
 - leave U.S. before about age 30

Publications

Research

Last 90 Days

2000-Present (pdf)

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Immigration Proposals

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Immigration

The Impact of Unauthorized Immigrants on the Budgets of State and Local Governments

December 2007 [pdf](#) [blog](#)

Senate Amendment 1150 to S. 1348, the Comprehensive Immigration Reform Act of 2007

June 4, 2007 [html](#) [pdf](#)

Cost estimate for the amendment, as amended through May 24, 2007

Testimony on the Role of Immigrants in the U.S. Labor Market

May 3, 2007 [html](#) [pdf](#) [webcast](#)

Testimony before the Subcommittee on Immigration, Citizenship, Refugees, Border Security, and International Law, Committee on the Judiciary, U.S. House of Representatives

Testimony on the Budgetary Impact of Current and Proposed Border Security and Immigration Policies

August 30, 2006 [pdf](#)

Testimony before the Committee on the Budget, United States Senate

S. 2611, Comprehensive Immigration Reform Act of 2006

August 18, 2006 [pdf](#)

Cost estimate for the bill as passed by the Senate on May 25, 2006

Projections of Net Migration to the United States

June 2006 [pdf](#)

S. 2611, Comprehensive Immigration Reform Act of 2006

May 24, 2006 [pdf](#)

Letter to the Honorable Jeff Sessions providing additional detail on some components of the cost estimate for S. 2611, as introduced on April 7, 2006

S. 2611, Comprehensive Immigration Reform Act of 2006

May 16, 2006 [pdf](#)

Cost estimate for the bill as introduced on April 7, 2006