



The Evolution of Global Bilateral Migration 1960-2000

Caglar Ozden

Christopher Parsons

Maurice Schiff

Terrie Walmsley

The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the World Bank, its Executive Directors or the governments they represent.



Motivation

- Migration an issue of increasing international importance
- Surprisingly little data, especially when compared to financial or trade statistics
- Therefore one of the priorities of the World Bank program on International Migration and Development



Previous Work

- OECD-centric:
 - Docquier & Marfouk (2006): Brain Drain
 - Docquier et al (2007): Gendered assessment of the Brain Drain
 - Docquier & Rapoport (2007): Control for age of entry
 - Harrison et al (2003): Stocks and remittances
- For the 2000 census round only:
 - Parsons et al (2005, 2007): 226*226
 - Ratha and Shaw (2007)



Who are migrants?

- Numerous definitions:
 - Country of birth
 - Country of citizenship
 - Purpose of visit or visa type
 - Place of last permanent residence
 - Duration of stay



Who are migrants?

- Why prioritize foreign born definition?
 - Physical movement more appropriate
 - Dependencies
 - Changing nationality possible
 - Naturalization rates vary
 - Aggregate categories smaller in magnitude
 - Disputed territories more easily assigned



How are migrants recorded?

- Censuses vs. Populations Registers
- Why prioritize censuses?
 - Commonly conducted
 - Standardized questions
 - Comprehensive coverage, designed to enumerate all residents



Raw Data I

- Global Migration Database – UNPD
 - 3,500 census records
 - Over 230 destinations
 - Time, gender, age



Raw Data II

Census Round	No. Birthplace Sources	No. Nationality Sources	Total No. National Sources	No. Birthplace by Gender	No. Nationality by Gender
1960	102	68	141	95	63
1970	91	55	124	82	46
1980	126	87	156	112	79
1990	134	113	182	112	96
2000	126	120	169	103	96
TOTAL	579	443	772	504	380

The Evolution of Global Bilateral Migration, 1960-2000
Ozden, Parsons, Schiff and Walmsley



Raw Data III

Number of missing census rounds	Number of Destination Countries	Percentage of World Migration, in 2000	Percentage of World Migration in 2000, (excluding migrations within the former Soviet Union)
0	49	47	57
1	49	6	8
2	41	17	20
3	52	21	13
4	29	8	2
5	6	0	1
Total	226	100	100

The Evolution of Global Bilateral Migration, 1960-2000
Ozden, Parsons, Schiff and Walmsley



Challenge I – Defining Countries

- Issue: Tracking migrants meaningfully over time
 - Break-ups: Soviet Union, India
 - Reunification: Germany, Yemen
 - Independence: Africa, Caribbean, Oceania
- Solution: 226*226 master list, over time
 - 203 sovereign nations +23 additions

Challenge II – Recording and recoding



- Issue: Standardizing origin regions:
 - A. Specific single entities: Vatican, Wake Island, Isle of Man
 - B. Aggregates: South America, Ex-French Africa
 - C. Miscellaneous: Born at sea, Unknown, Stateless

Challenge II – Recording and recoding



- Solution:
 - Relabeling (10,000 → 522)
 - A. Aggregate single entities (226 from Master list, 65 others)
 - B. Disaggregate agglomerated categories (231)
 - C. Treat equally miscellaneous entries



Challenge III – Standardizing Origins

- Issue: Disaggregating geographic aggregates
- Solution:
 - Identification
 - Propensity measures

Challenge III – Standardizing Origins

- Equation 1 – Average Destination Country Shares

$$M_{Armenia,Australia}^{1970,total} = \left(\frac{\sum_{k \neq 1970} M_{Armenia,Australia}^{k,total}}{\sum_{k \neq 1970} \sum_{i \in "SovietUnion"} M_{i,Australia}^{k,total}} \right) M_{SovietUnion,Australia}^{1970}$$

Challenge III – Standardizing Origins

Origin Country listed in 2001 Australian census	Total immigrants to Australia in 2001	Share of USSR migration to Australia in 2001	Number migrants allocated in 1966 across constituent countries
Azerbaijan	145	0.3%	93
Armenia	899	2.0%	576
Belarus	1,041	2.3%	667
Estonia	2,386	5.2%	1,529
Georgia	310	0.7%	199
Kazakhstan	438	1.0%	281
Kyrgyzstan	101	0.2%	65
Latvia	6,690	14.6%	4,287
Lithuania	3,689	8.1%	2,364
Moldova	483	1.1%	309
Russian Federation	15,022	32.8%	9,625
Tajikistan	41	0.1%	26
Turkmenistan	26	0.1%	17
Ukraine	14,062	30.7%	9,010
Uzbekistan	412	0.9%	264
TOTAL USSR	45,745	100%	29,311

The Evolution of Global Bilateral Migration, 1960-2000
 Ozden, Parsons, Schiff and Walmsley

Challenge III – Standardizing Origins

- Equation 2. Average Regional Shares

$$M_{Ghana,Morocco}^t = \left(\frac{\sum_{k \neq t} \sum_{f \in NorthAfrica} M_{Ghana,f}^k}{\sum_{k \neq t} \sum_{f \in NorthAfrica} \sum_{i \in AcrossWestAfrica} M_{i,f}^k} \right) M_{AcrossWestAfrica,Morocco}^t$$

Challenge III – Standardizing Origins

- Equation 3. Global Shares

$$M_{o,d}^t = \left(\frac{\sum_{k \neq t} \sum_f M_{o,f}^t}{\sum_{k \neq t} \sum_f \sum_i M_{i,f}^t} \right) \sum_{i \in J} M_{i,d}^t$$

Challenge IV – Unharmonized Survey dates

- Issue: Census dates are not harmonised

Census Round	% Censuses by birthplace	% Censuses by Nationality
1960	75	71
1970	66	73
1980	73	70
1990	76	70
2000	84	76

- Solution: Nothing
 - Different version

Challenge V – Missing Gender Splits



- Issue: Assigning gender splits to aggregate data missing
- Solution: Propensity measures
 - Regional shares
 - Regional shares over time



Challenge VI – Combining Definitions

- Issue: Cannot easily combine Foreign Born and Nationality data
- Solution: Prioritise foreign born (156)
 - Not so much of an issue in Middle East and East Asia
 - Always choose if three or more census rounds with foreign born data



Challenge VII – Missing Census Data

- Issue: Many census rounds missing, why?
 - Lack of expertise
 - Some only very recent
 - Expensive
 - Conflict or Political upheaval
 - Politicised
 - Alternative definition



Challenge VII – Missing Data

- Issue 1: Missing in-between decades
- Solution (42 country-years):
 - Interpolation



Challenge VII – Missing Data

- Issue 2: Missing end decades
- Solution (115 country-years):
 - Missing year same composition as closest decade for which we have data
 - Apply bilateral shares to 'total'
 - Total either:
 - Given in census where no bilateral data
 - Closest decade adjusted for growth (refugees)



Challenge VII – Missing Data

- Issue 3: Very poor data (<3 censuses)
- Solution (86 cases):
 - Adjust to United Nation's "Trends in World Migrant Stock" data
 - Consistent over time
 - Apply bilateral shares

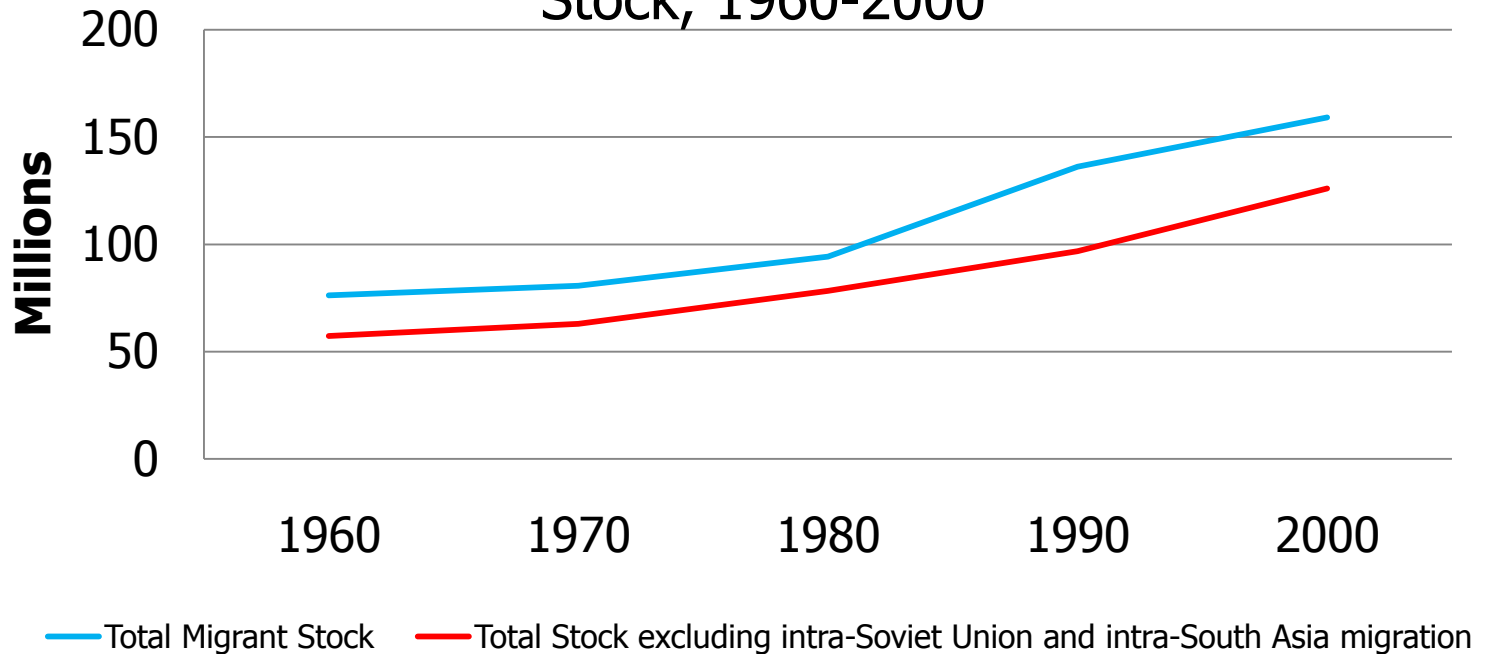


Challenge VII – Missing Data

- Issue 4: Missing countries
 - Afghanistan, China, Eritrea, Lebanon, the Maldives, Qatar, Somalia, the People's Republic of Korea and Vietnam.
- Solution (9 cases):
 - Calculate propensity of countries in the sub-region to accept migrants – disaggregate totals.

What the Data Show I

Figure 1. The Evolution of the Global Migrant Stock, 1960-2000



What the Data Show II

Figure 2a Growth of Migrant Stocks in selected regions

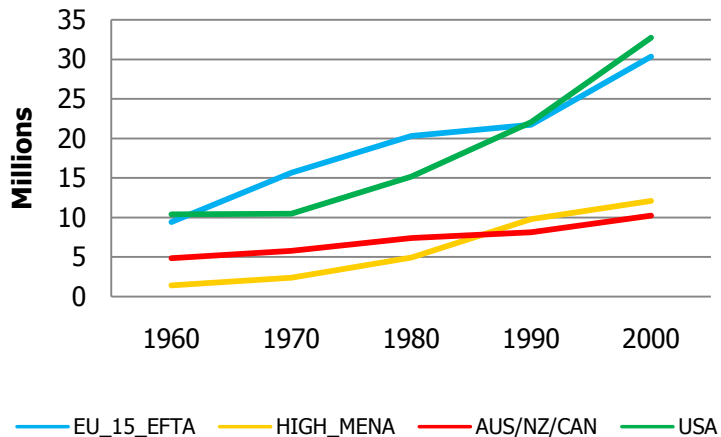
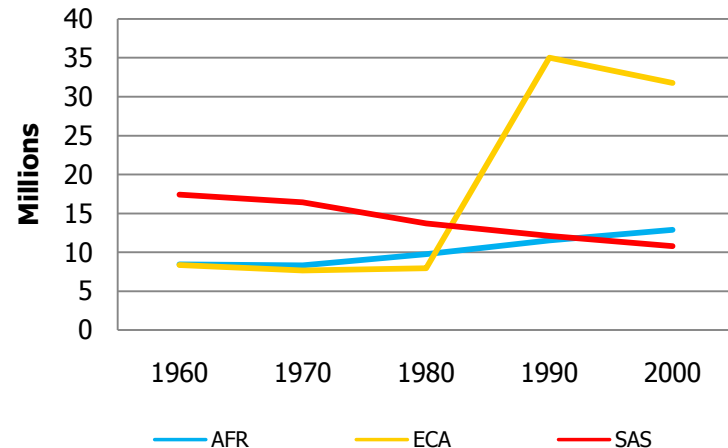


Figure 2b Growth of Migrant Stocks in selected regions



What the Data Show II

Figure 2c. Growth in migrant stocks from selected regions

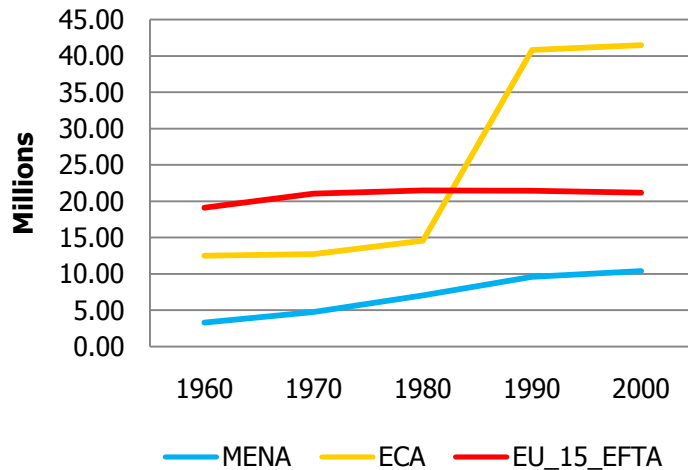
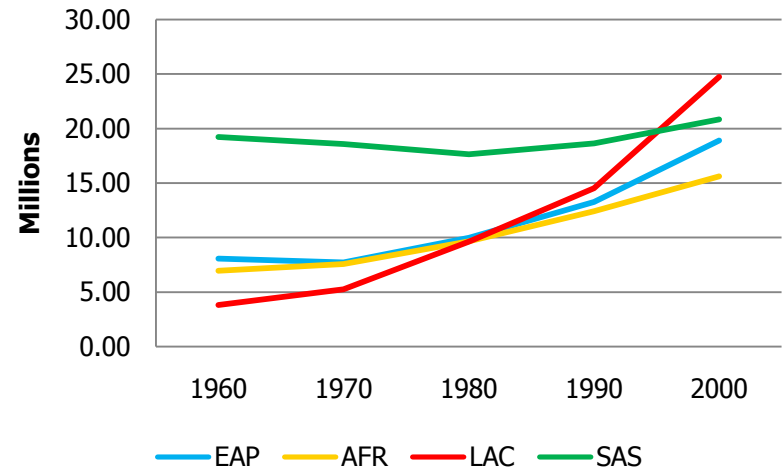
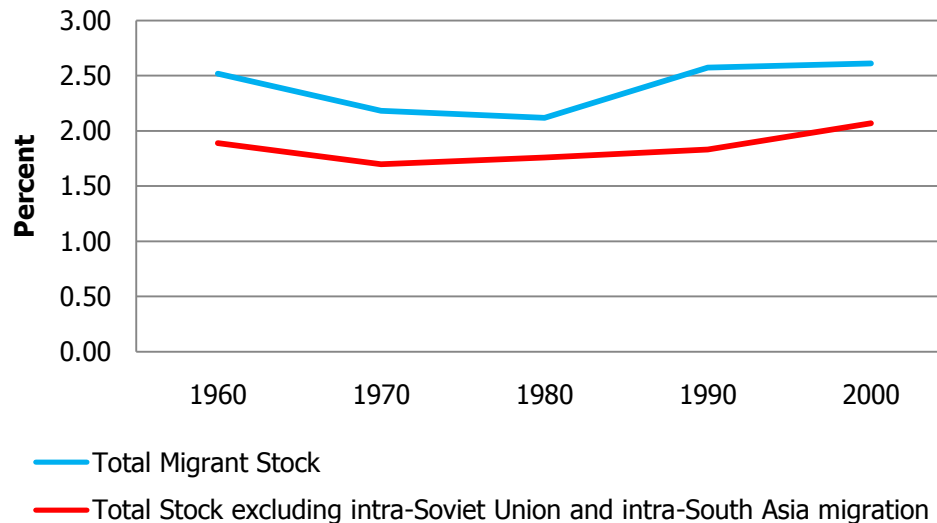


Figure 2d. Growth in migrant stocks from selected regions



What the Data Show III

Figure 3. The World Migrant Stock as a Percentage of the World Population, 1960-2000





What the Data Show IV

Ranking 2000	Destination	Immigrants	Population	% Dom. Pop.	Ranking 1960	Destination	Immigrants	Population	% Dom. Pop.
1	United States of America	32,700,000	284,153,738	12	1	United States of America	10,400,000	186,158,251	6
2	Russian Federation	13,400,000	146,709,971	9	2	India	9,056,684	442,344,099	2
3	Germany	7,296,817	82,344,434	9	3	Pakistan	6,350,297	46,259,285	14
4	France	6,227,127	59,278,011	11	4	France	3,798,656	45,684,002	8
5	India	6,166,931	1,021,084,243	1	5	Canada	2,718,023	17,909,009	15
6	Canada	5,418,261	30,689,036	18	6	Argentina	2,604,447	20,616,010	13
7	Saudi Arabia	5,130,983	21,484,344	24	7	Poland	2,424,881	29,637,546	8
8	United Kingdom	4,865,559	58,669,738	8	8	Australia	1,778,780	10,276,477	17
9	Ukraine	4,493,458	49,005,222	9	9	Indonesia	1,756,368	95,931,096	2
10	Australia	4,105,680	19,071,458	22	10	United Kingdom	1,657,157	51,571,997	3
11	Côte d'Ivoire	4,000,047	16,734,951	24	11	Hong Kong	1,636,761	3,075,097	53
12	Hong Kong	2,703,495	6,636,944	41	12	Russian Federation	1,615,981	119,631,633	1
13	Pakistan	2,640,947	142,648,139	2	13	Uganda	1,333,707	6,620,496	20
14	United Arab Emirates	2,285,643	3,247,000	70	14	Brazil	1,252,467	72,742,370	2
15	Uzbekistan	2,263,093	25,041,821	9	15	Israel	1,201,911	2,114,020	57

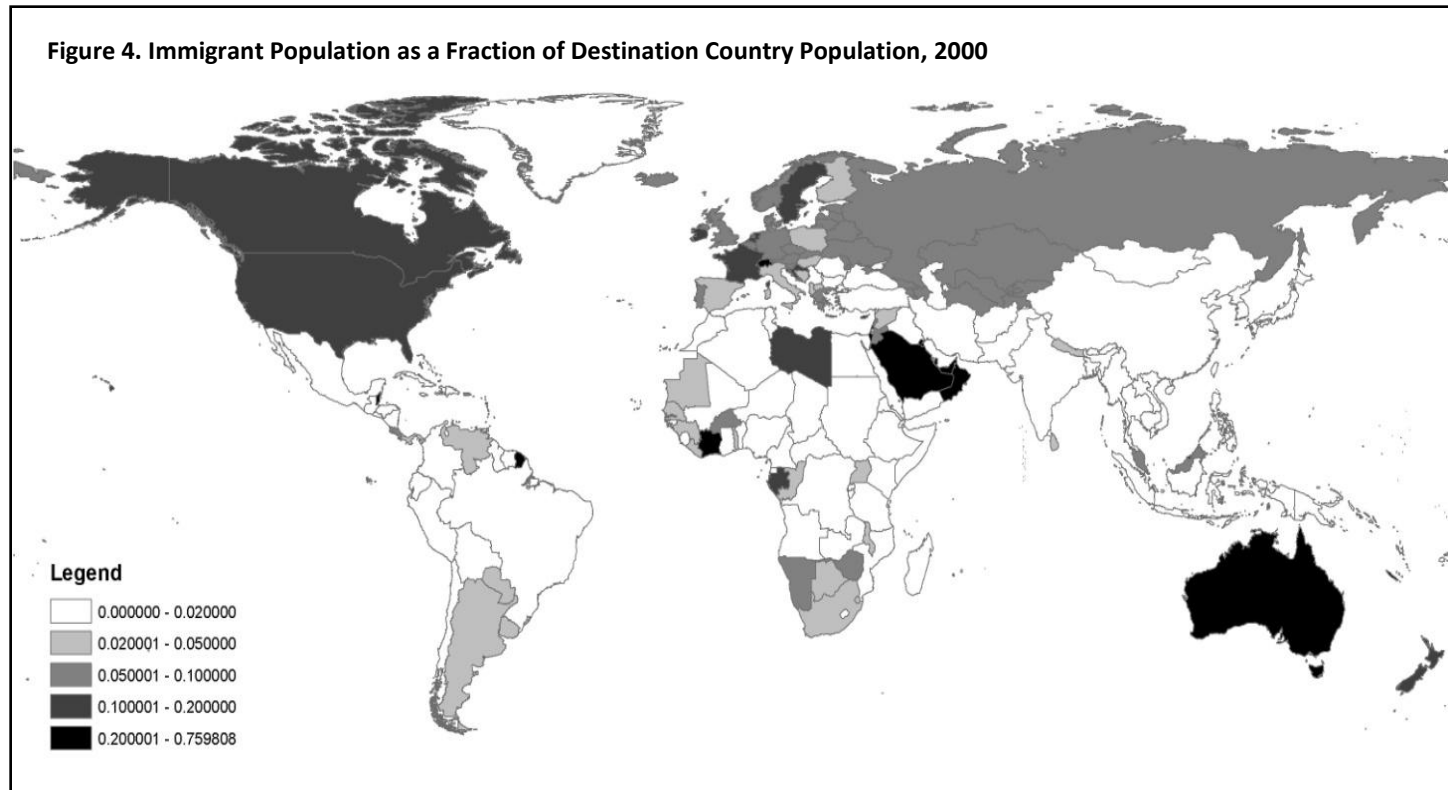
The Evolution of Global Bilateral Migration, 1960-2000
 Ozden, Parsons, Schiff and Walmsley

What the Data Show V

Ranking 2000	Origin	Emigrants	Population	% Orig. Pop	Ranking 1960	Origin	Emigrants	Population	% Orig. Pop.
1	India	9,570,124	1,021,084,243	1	1	India	9,439,894	442,344,099	2
2	Mexico	9,304,050	100,087,890	9	2	Pakistan	8,572,667	46,259,285	19
3	Russian Federation	8,343,918	146,709,971	6	3	China	5,184,991	657,491,789	1
4	Ukraine	5,924,687	49,005,222	12	4	Italy	4,356,983	50,199,700	9
5	China	5,652,519	1,273,979,365	0	5	United Kingdom	3,181,852	51,571,997	6
6	Bangladesh	4,850,889	128,915,876	4	6	Ukraine	2,454,969	42,644,035	6
7	United Kingdom	4,134,576	58,669,738	7	7	Germany	2,379,150	72,673,000	3
8	Kazakhstan	3,861,836	15,032,140	26	8	Russian Federation	1,986,446	119,631,633	2
9	Pakistan	3,803,422	142,648,139	3	9	Spain	1,799,465	30,455,155	6
10	Germany	3,447,478	82,344,434	4	10	Poland	1,622,498	29,637,546	5
11	Turkey	3,275,787	68,234,388	5	11	Canada	1,103,039	17,909,009	6
12	Italy	3,219,676	57,714,838	6	12	Algeria	1,042,597	10,799,997	10
13	Philippines	2,919,212	75,766,144	4	13	Portugal	1,028,855	8,857,719	12
14	Burkina Faso	2,383,317	11,291,615	21	14	France	1,023,165	45,684,002	2
15	Egypt	2,221,031	67,285,498	3%	15	Belgium	972,241	9,153,489	11

The Evolution of Global Bilateral Migration, 1960-2000
 Ozden, Parsons, Schiff and Walmsley

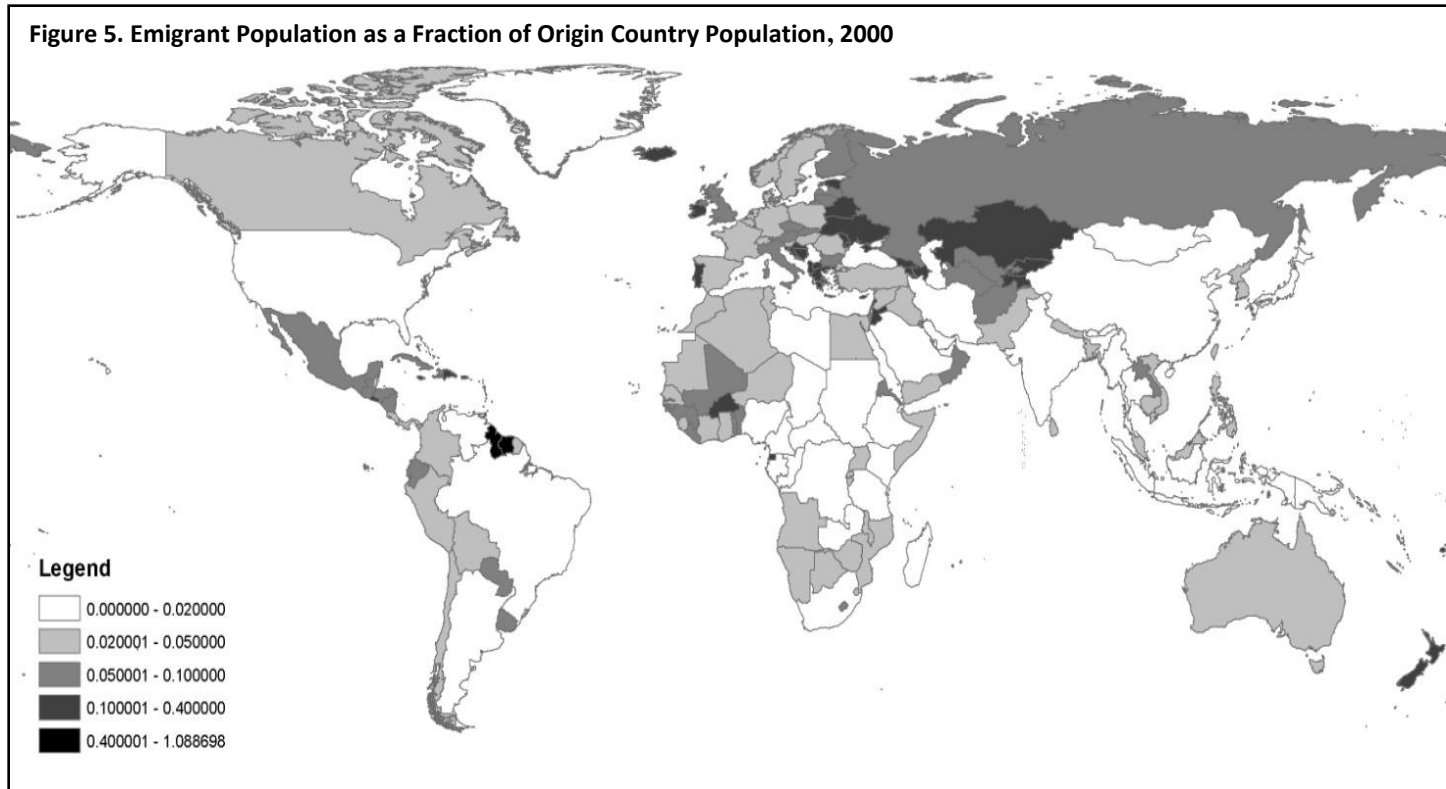
What the Data Show VI



The Evolution of Global Bilateral Migration, 1960-2000
Ozden, Parsons, Schiff and Walmsley

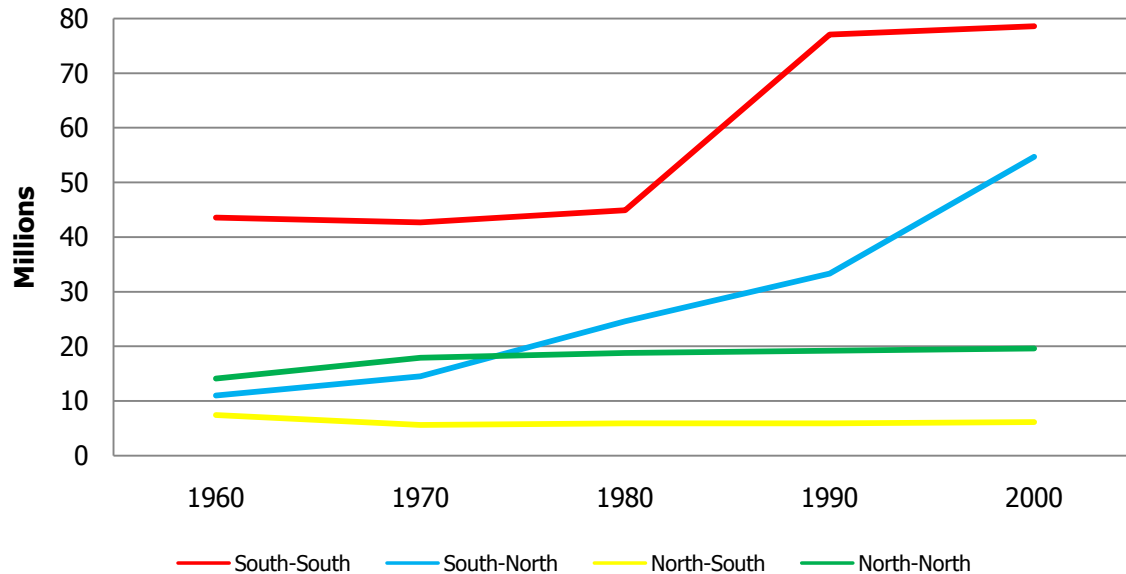
What the Data Show VII

Figure 5. Emigrant Population as a Fraction of Origin Country Population, 2000



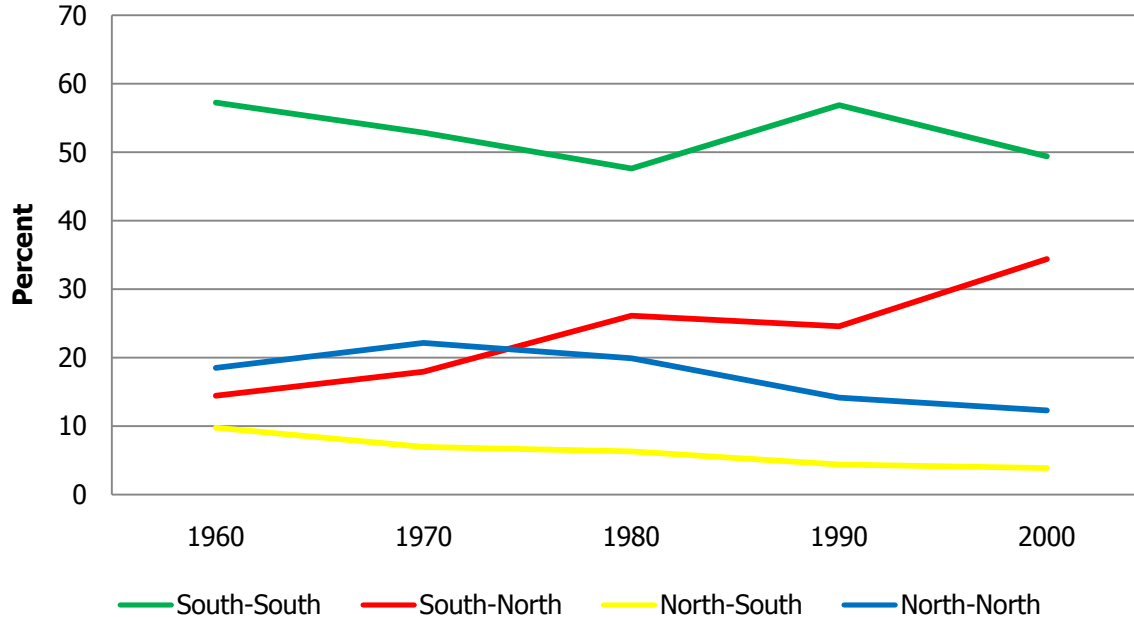
What the Data Show VIII

Figure 6a. The Evolution of Migrants Stocks Between the 'North' and the 'South', 1960-2000



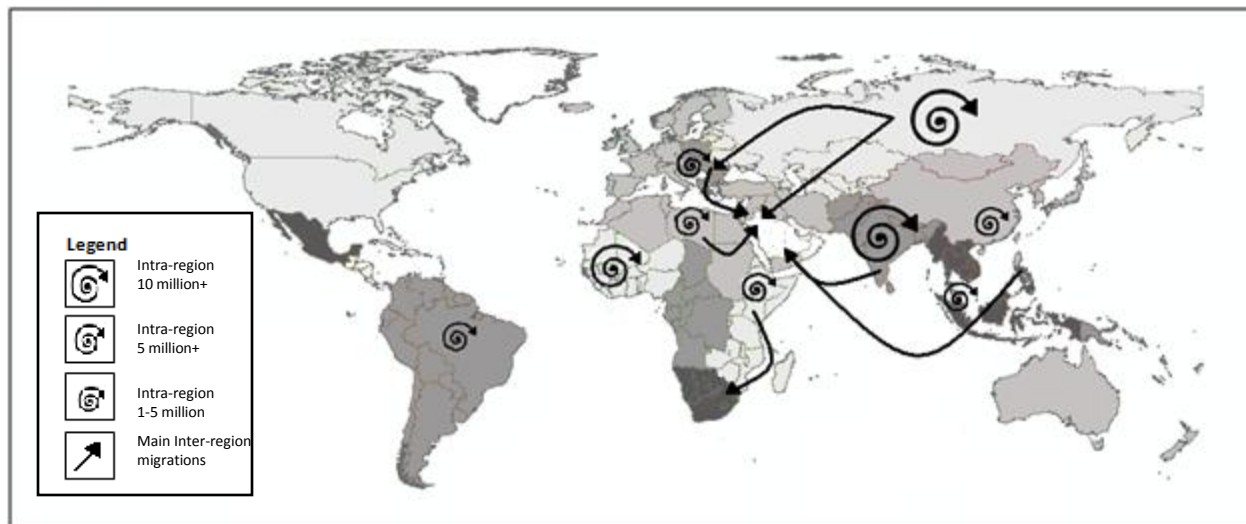
What the Data Show IX

Figure 6b. The Proportion of Global Migration accounted for by the North and the South



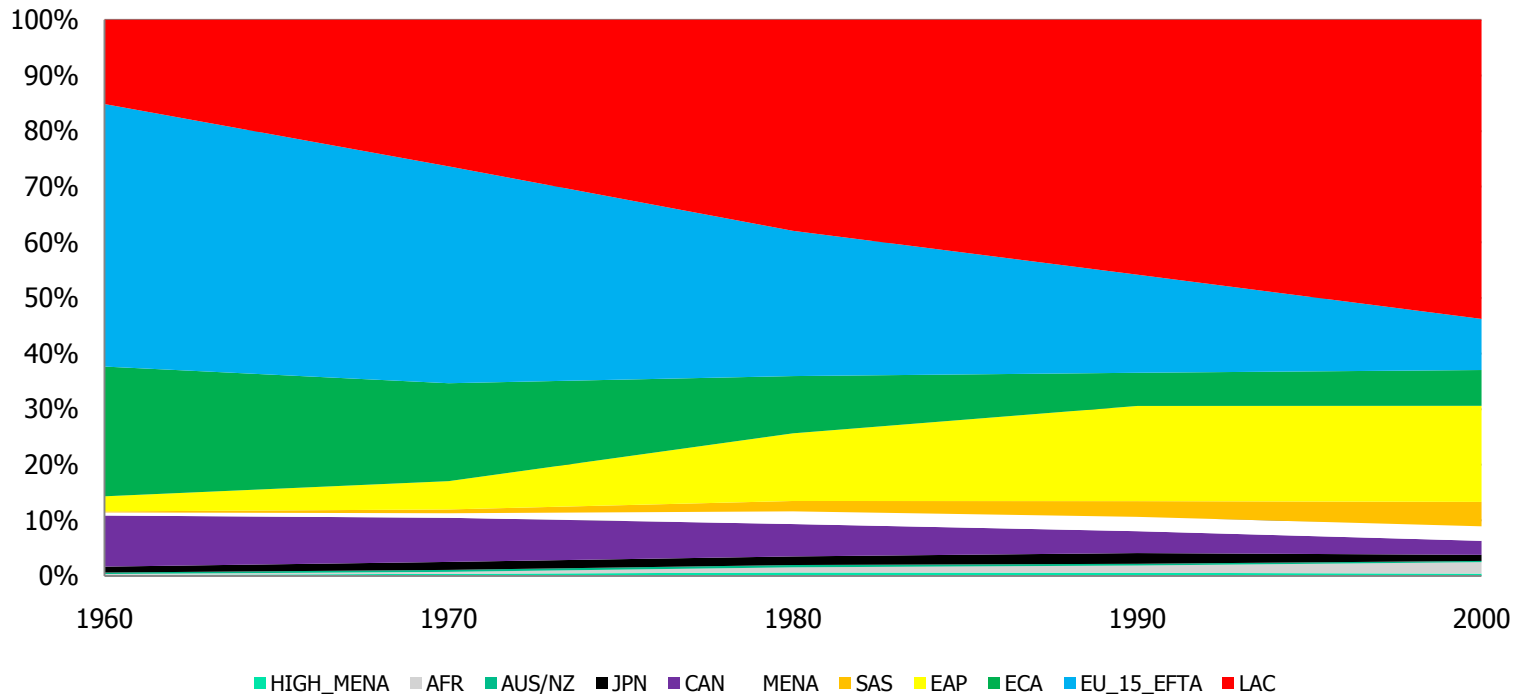
What the Data Show X

Figure 7. South-South inter- and intra-regional migration, 2000



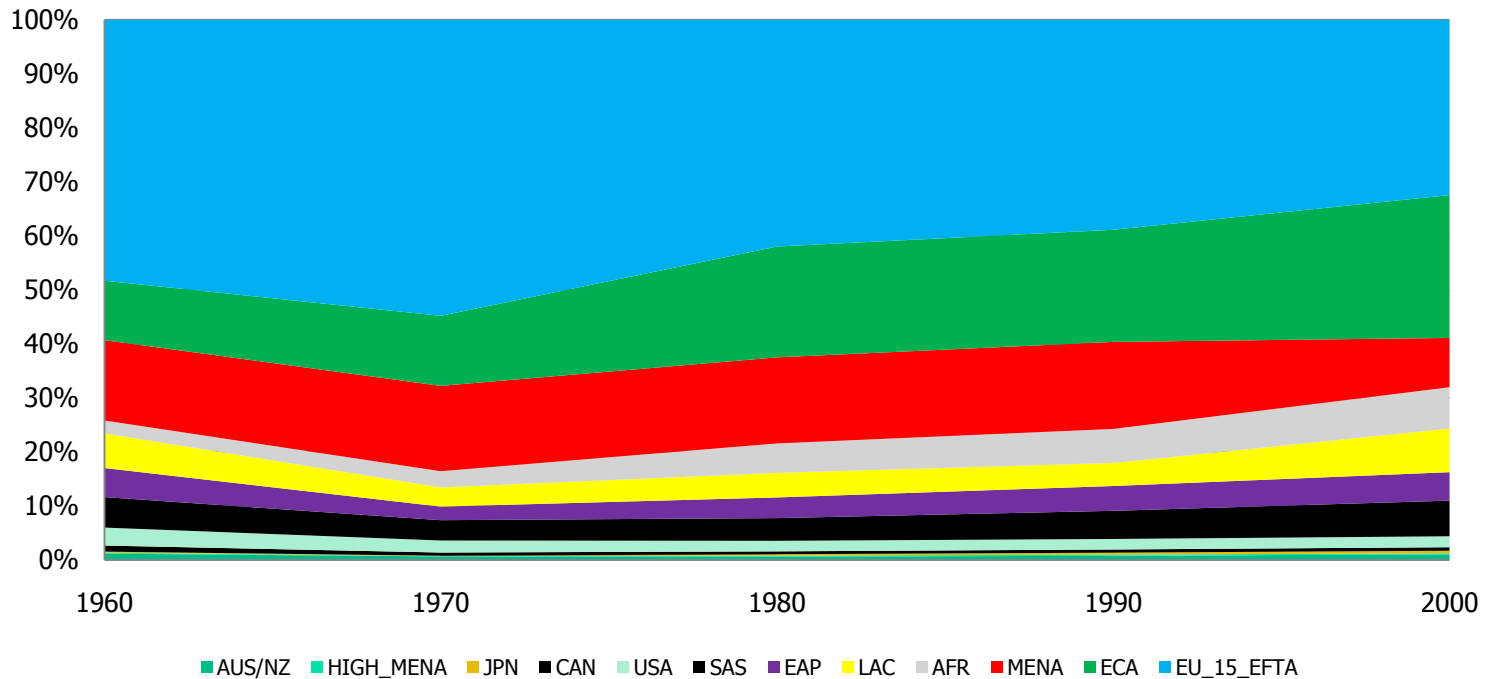
What the Data Show XI

Figure 8. The Composition of Immigration in the United States, 1960-2000



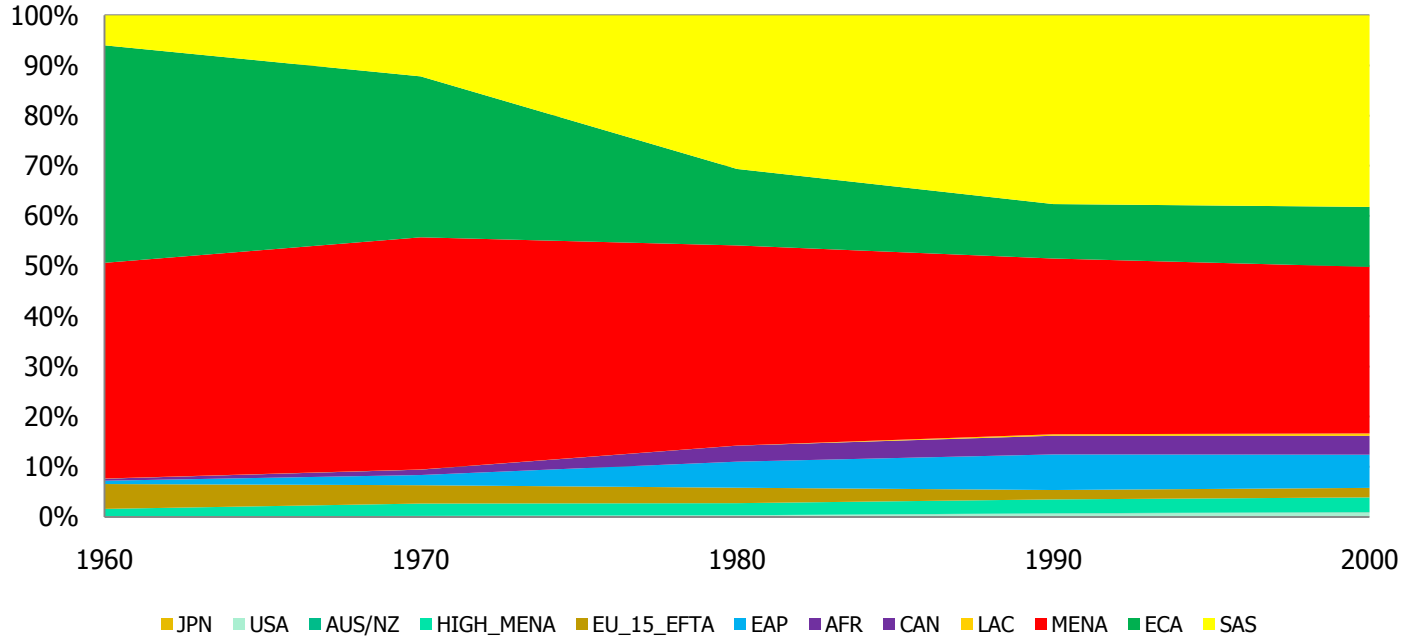
What the Data Show XII

Figure 9. The Composition of Immigration in Western Europe, 1960-2000



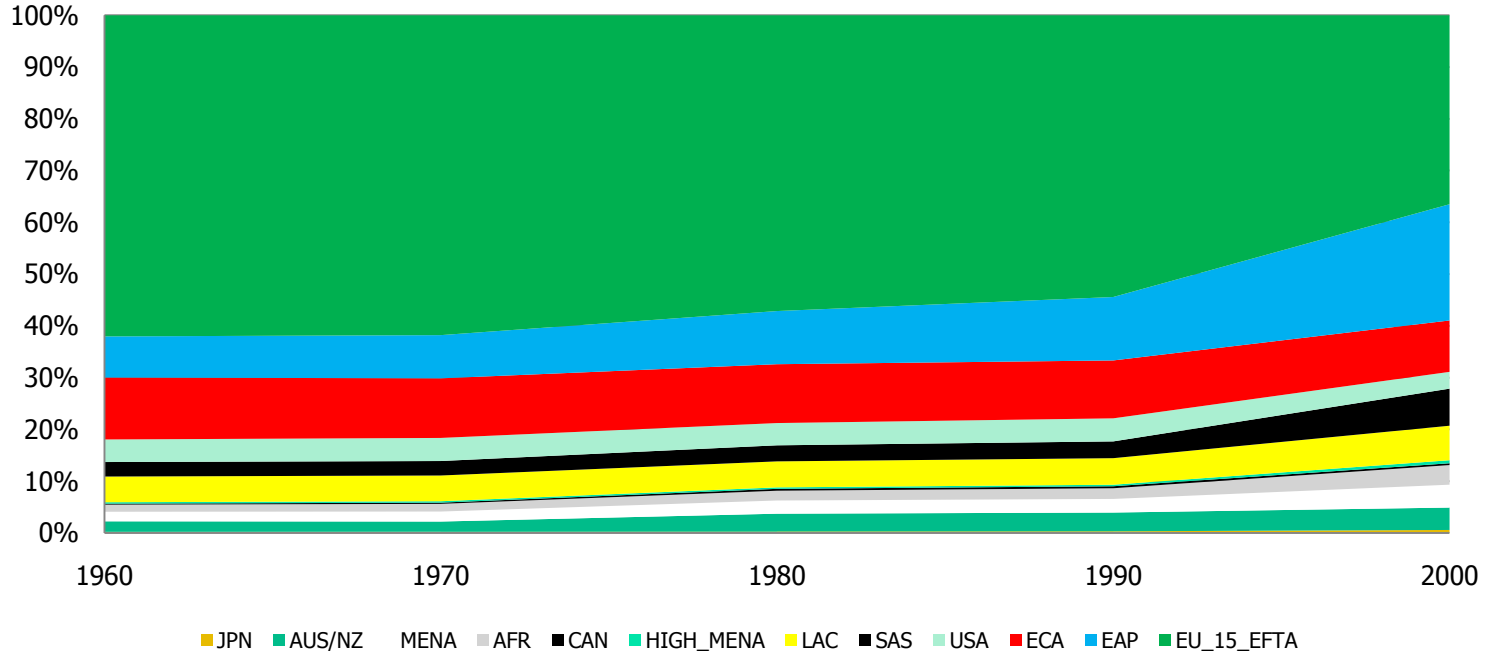
What the Data Show XIII

Figure 10. The Composition of Immigration in the High MENA region, 1960-2000



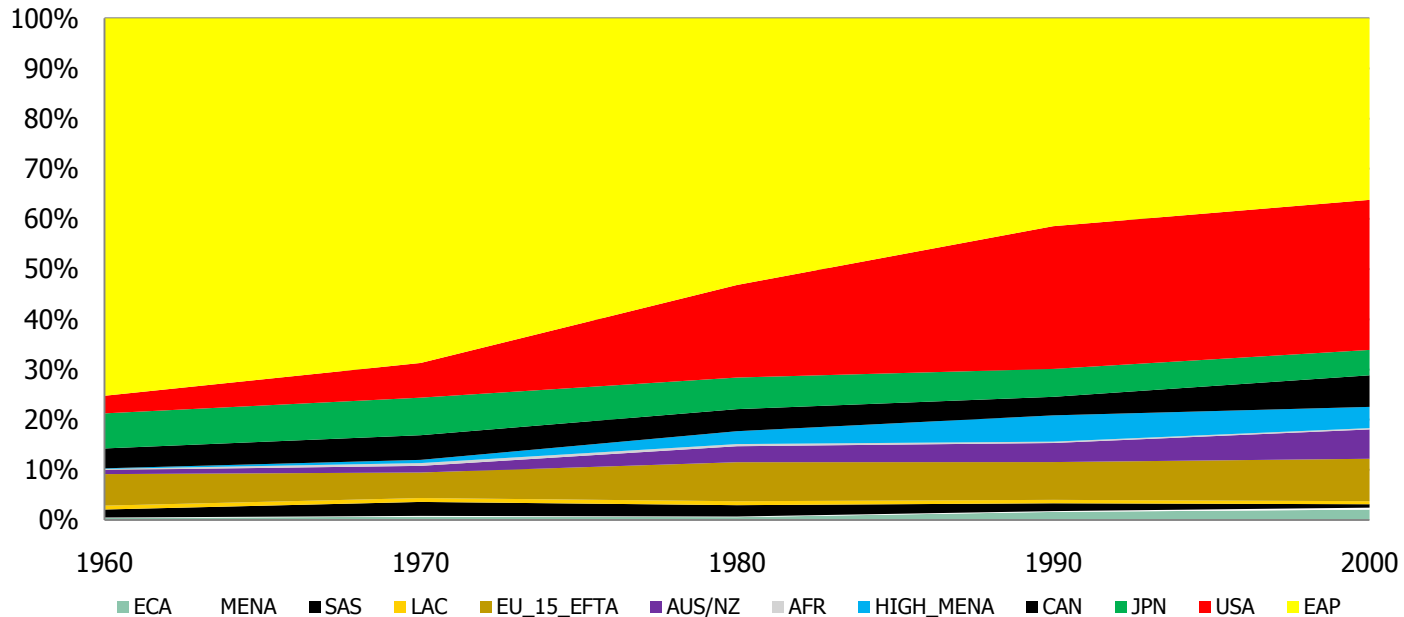
What the Data Show XIV

Figure 11. The Composition of Immigration in Australia , New Zealand and Canada, 1960-2000



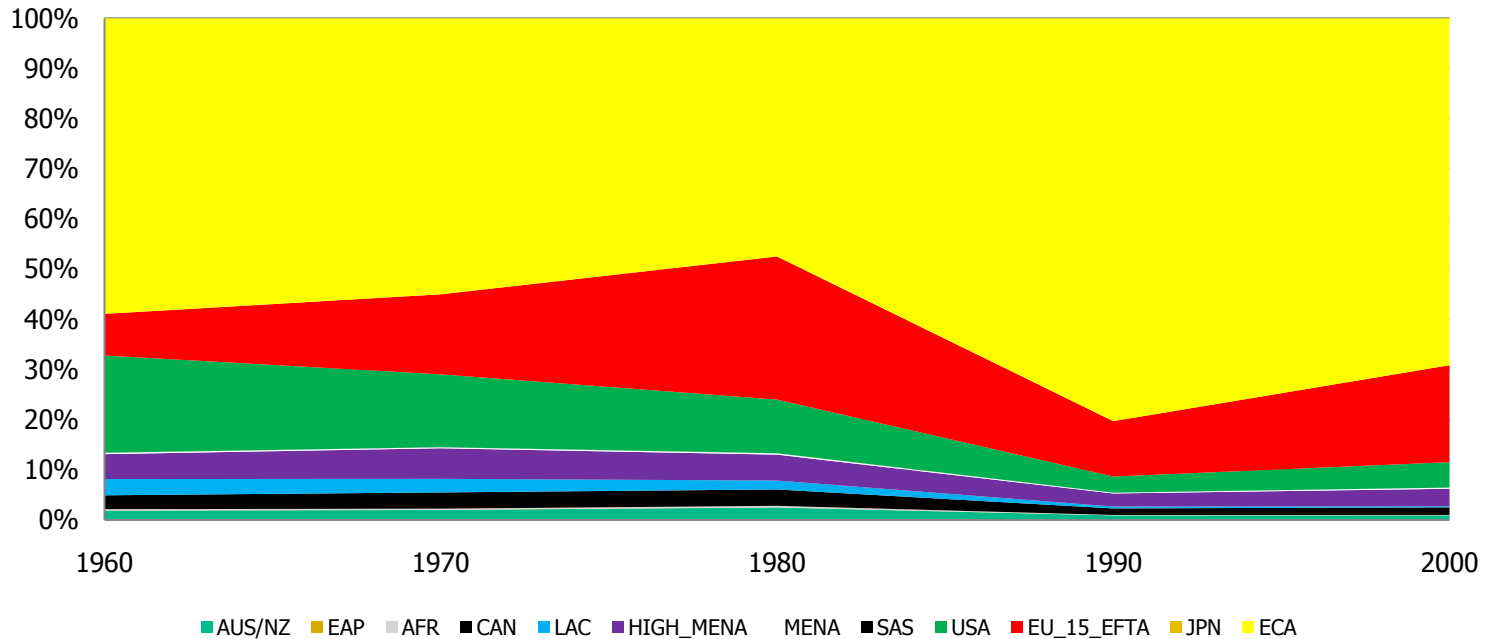
What the Data Show XV

Figure 12. The Composition of Emigration from East Asia and the Pacific, 1960-2000



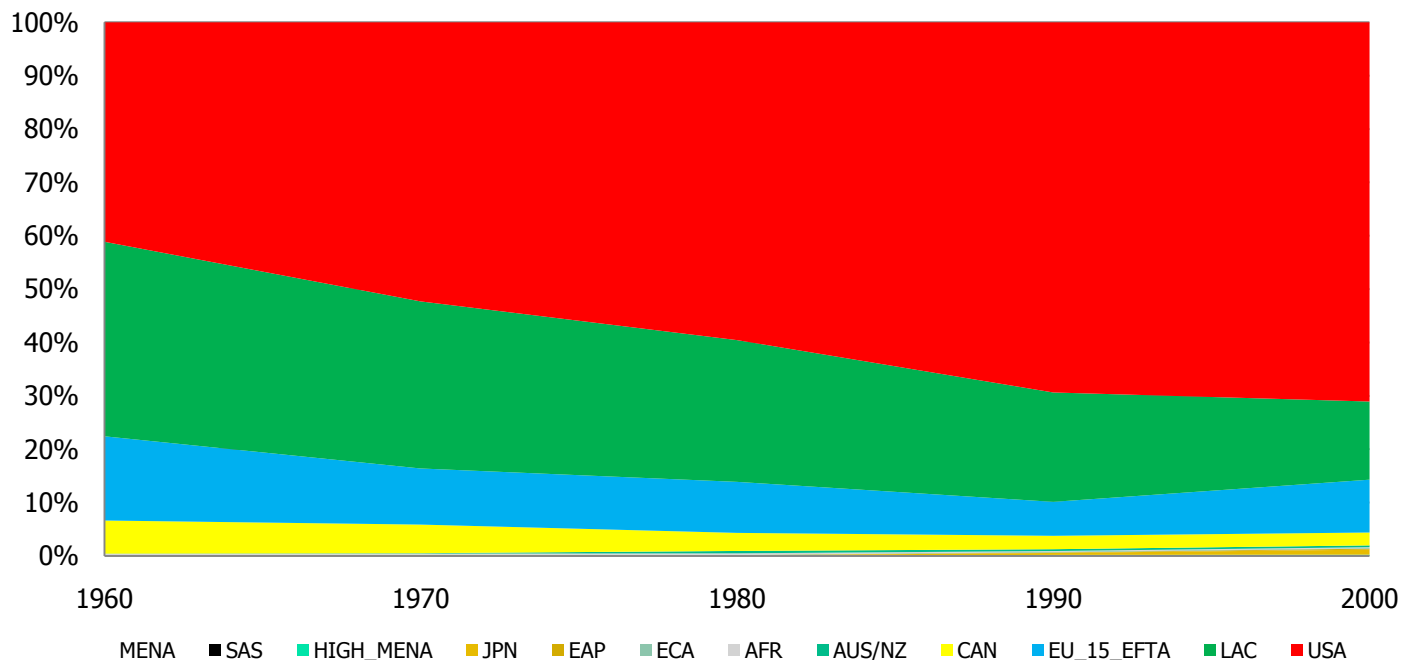
What the Data Show XVI

Figure 13. The Composition of Emigration from Eastern Europe and Central Asia, 1960-2000



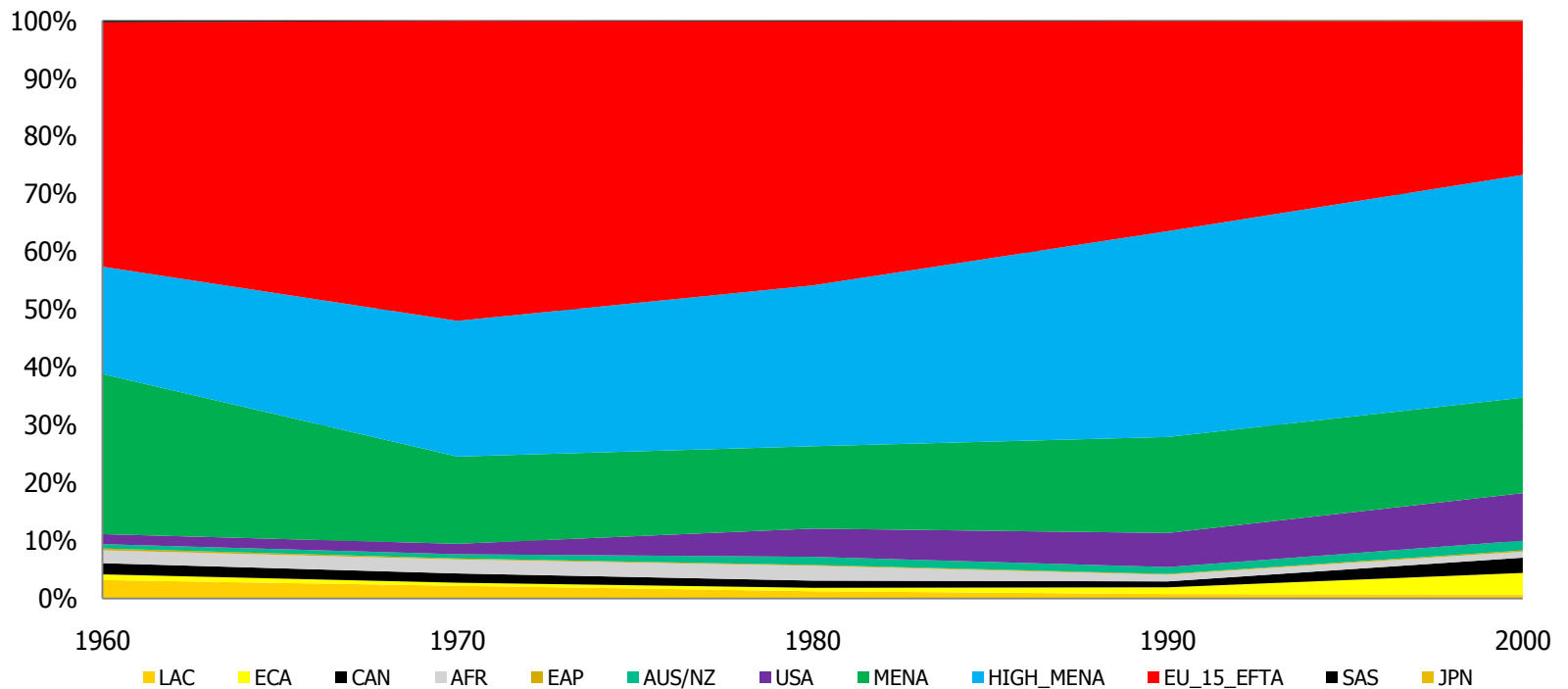
What the Data Show XVII

Figure 14. The Composition of Emigration from Latin America and the Caribbean, 1960-2000



What the Data Show XVIII

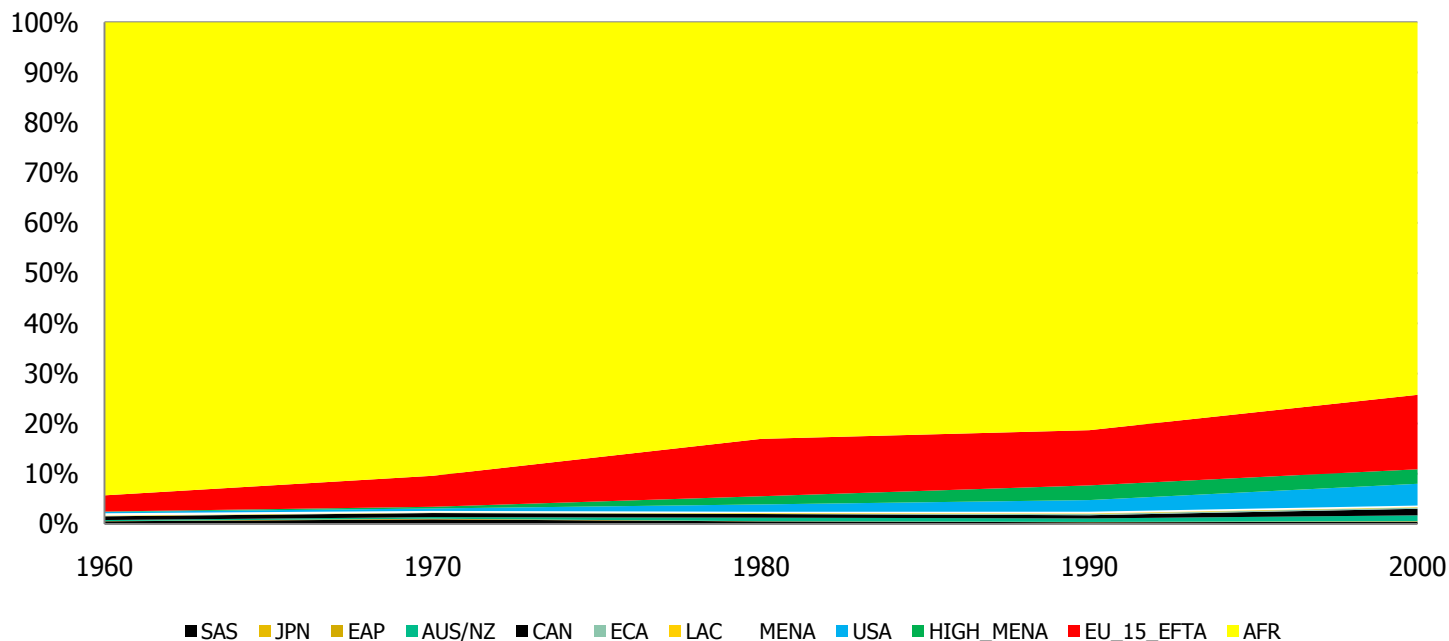
Figure 15. The Composition of Emigration from North Africa and the Middle East, 1960-2000



The Evolution of Global Bilateral Migration, 1960-2000
Ozden, Parsons, Schiff and Walmsley

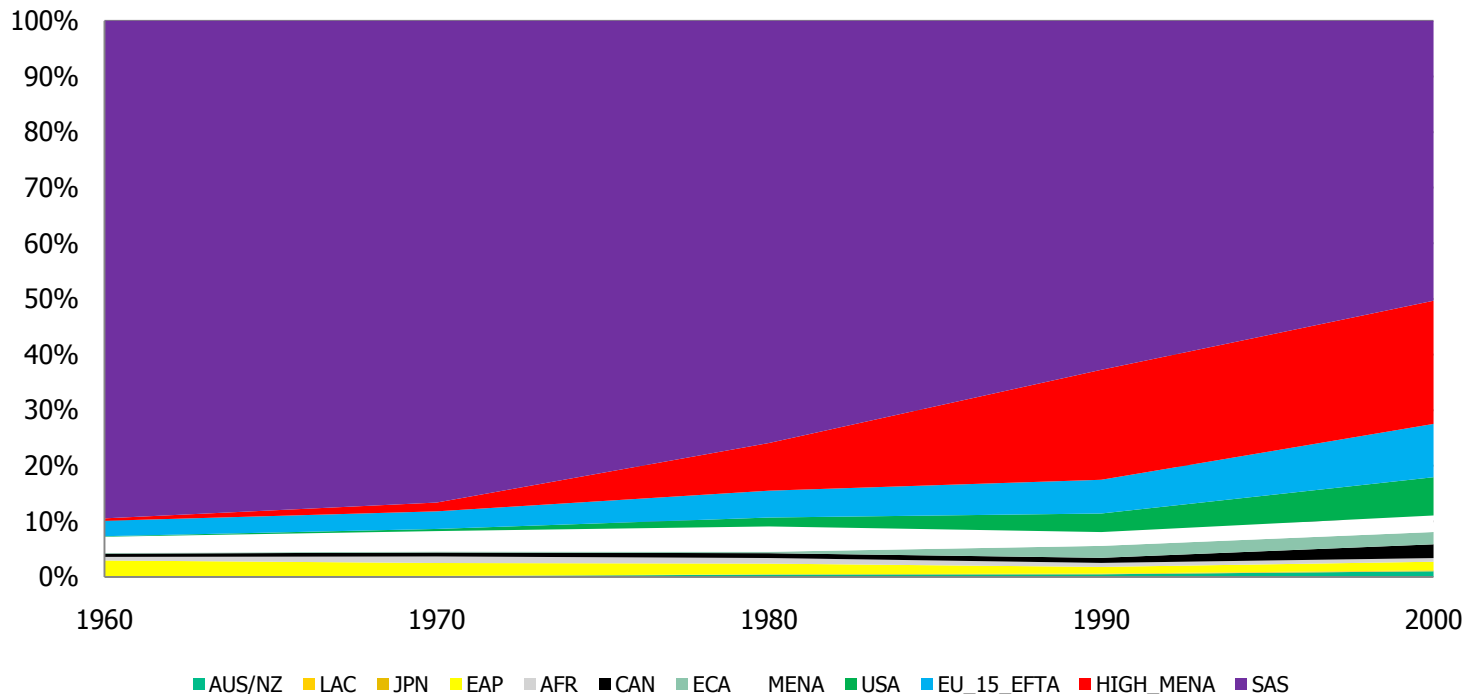
What the Data Show XIX

Figure 16. The Composition of Emigration from Sub-Saharan Africa, 1960-2000



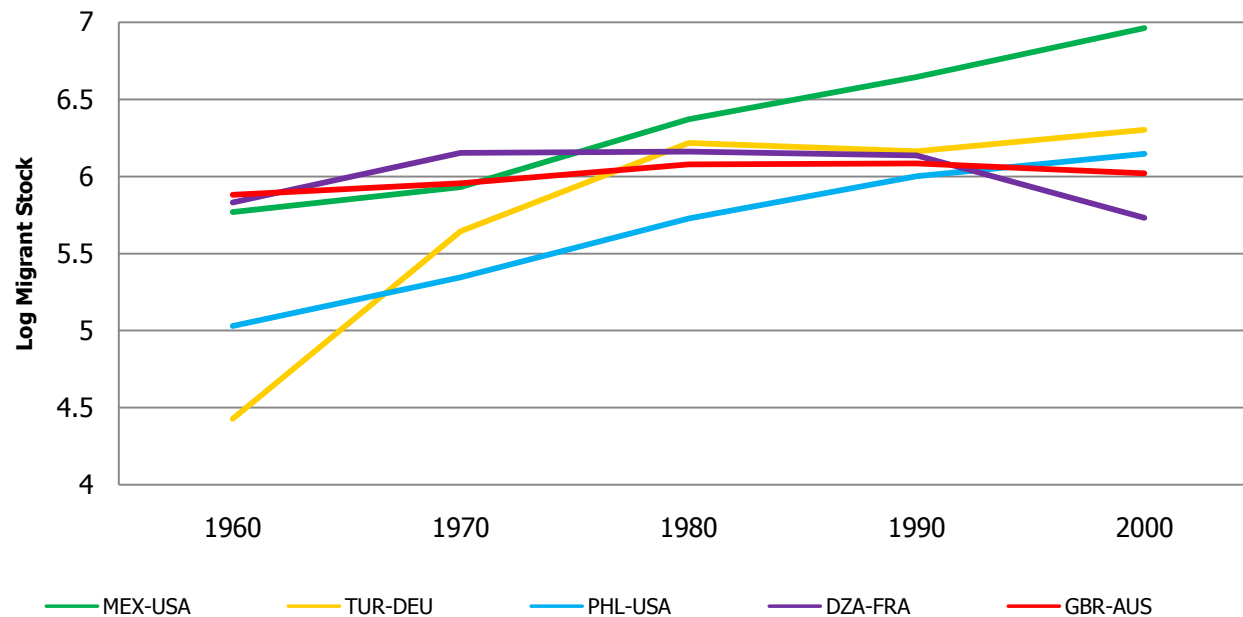
What the Data Show XX

Figure 17. The Composition of Emigration from South Asia, 1960-2000



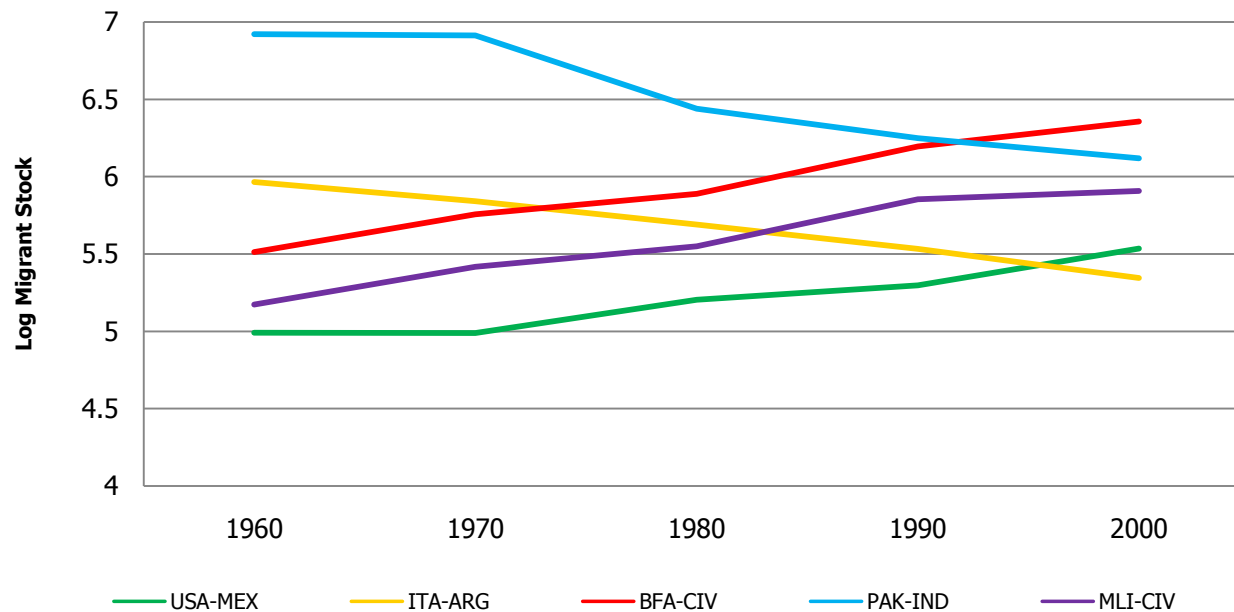
What the Data Show XXI

Figure 18. Selected Migration Corridors to the North, 1960-2000



What the Data Show XXII

Figure 19. Selected Migration Corridors to the South, 1960-2000



What the Data Show XXIII

Figure 20a. Proportion of males in destination immigrant stocks, 1960 and 2000

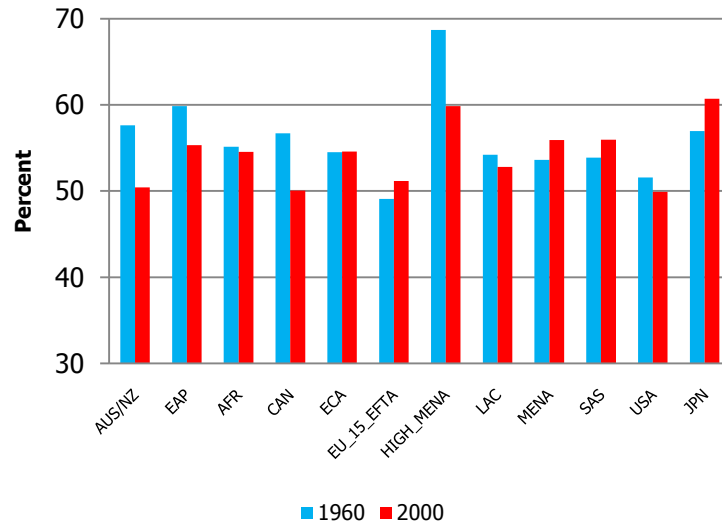
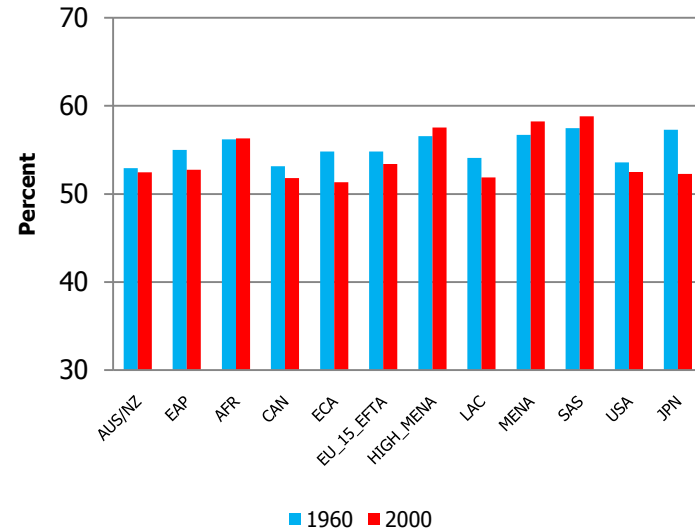


Figure 20b. Proportion of males in origin emigrant stocks, 1960 and 2000





Conclusion

- Pragmatism vs. accuracy
- Assumptions?



Conclusion

NEVER ENDING STORY?