DEMOGRAPHY AND MIGRATION :
A COMPLICATED AFFAIR

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Demography and migration

- Demography works best with models closed to the outside.
- If the analysis or projection is to include migration, the analysis is opened for other countries, potentially the whole world.
- If certain assumptions are made about migration in a particular country, other countries (the world) is also affected.
- It's the interaction, stupid!
- Balancing the world (later).

Scandal of invisibility

- ~50% of the world's adult population is not present in mortality statistics.

- Most developing country do not have a comprehensive and robust civil registration system.

- Those who are not counted do not count: Scandal of invisibility*

- The Lancet article does not mention migration!

*Setel et al (2007. A scandal of invisibility: making everyone count by counting everyone. The Lancet, Volume 370, Issue 9598, Pages 1569 - 1577, 3 November 2007
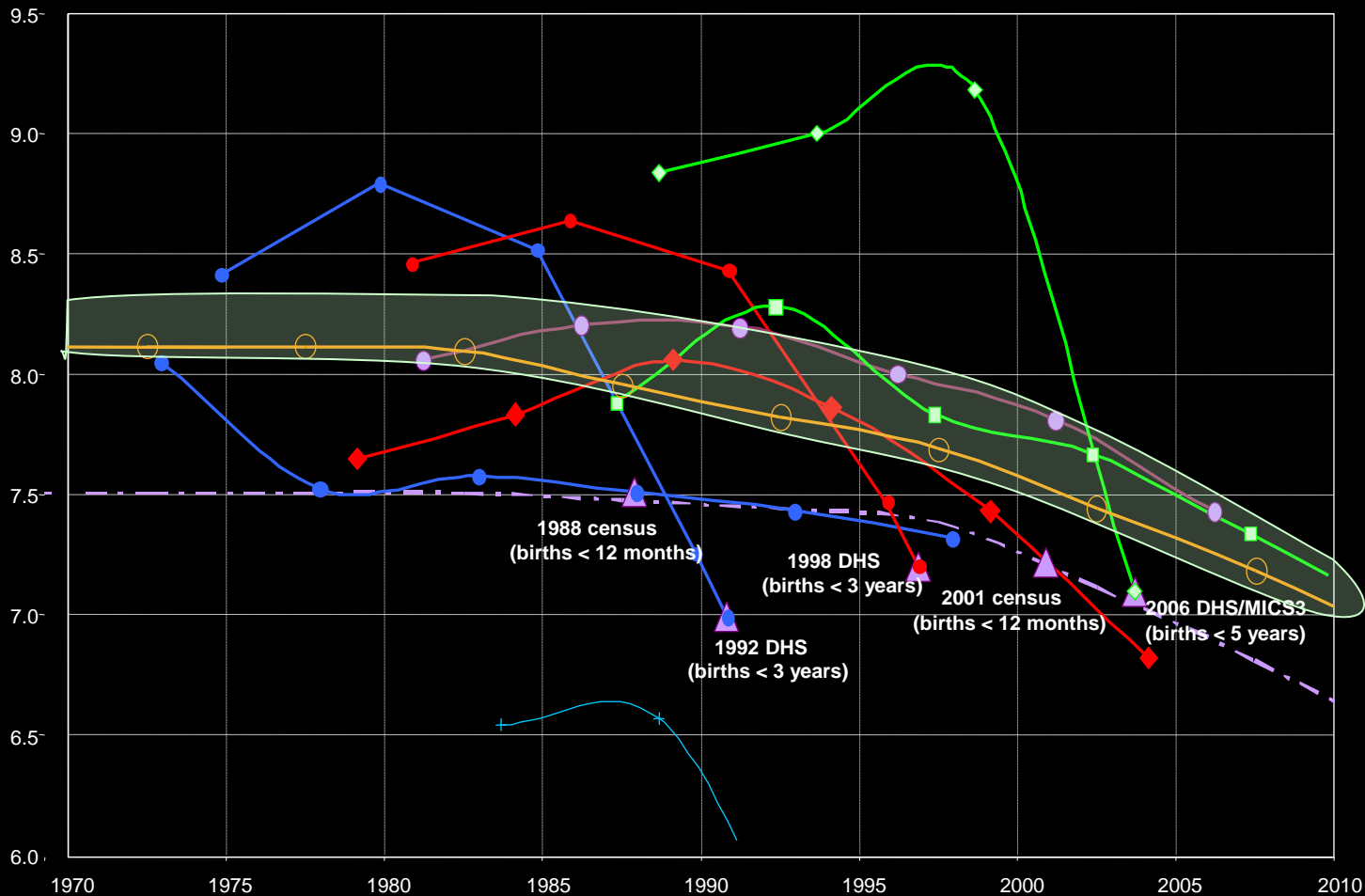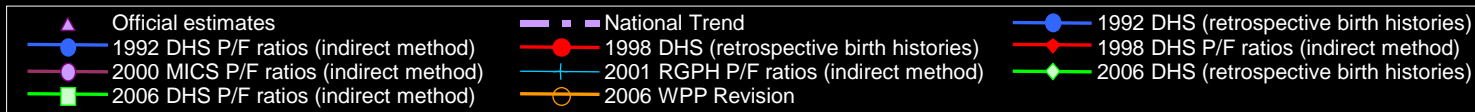
Data sources (TFR Niger)
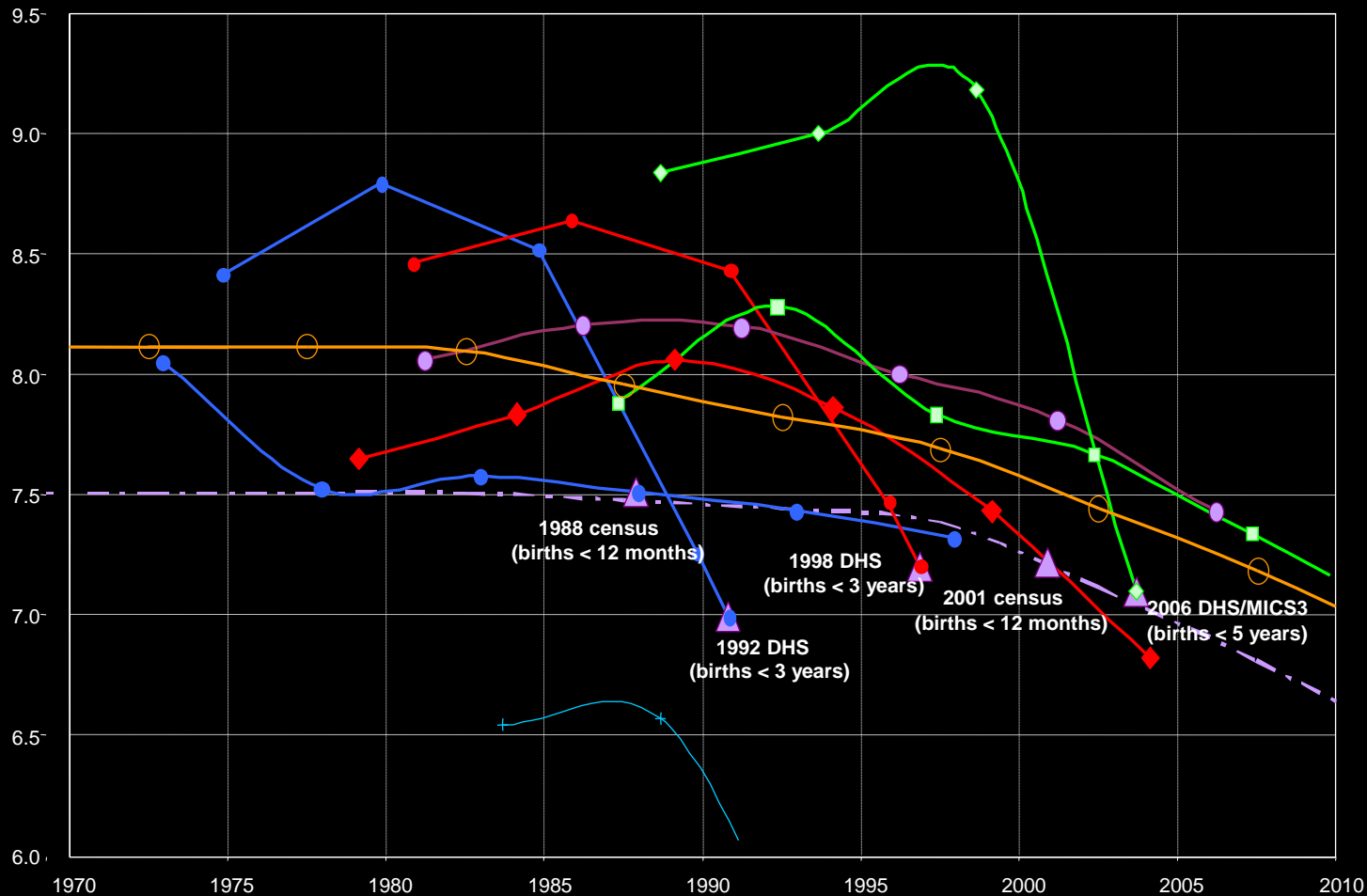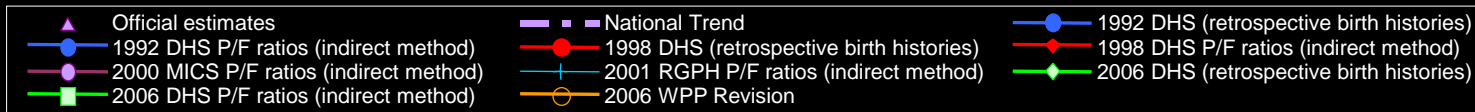
Estimating the past: Naive attempt
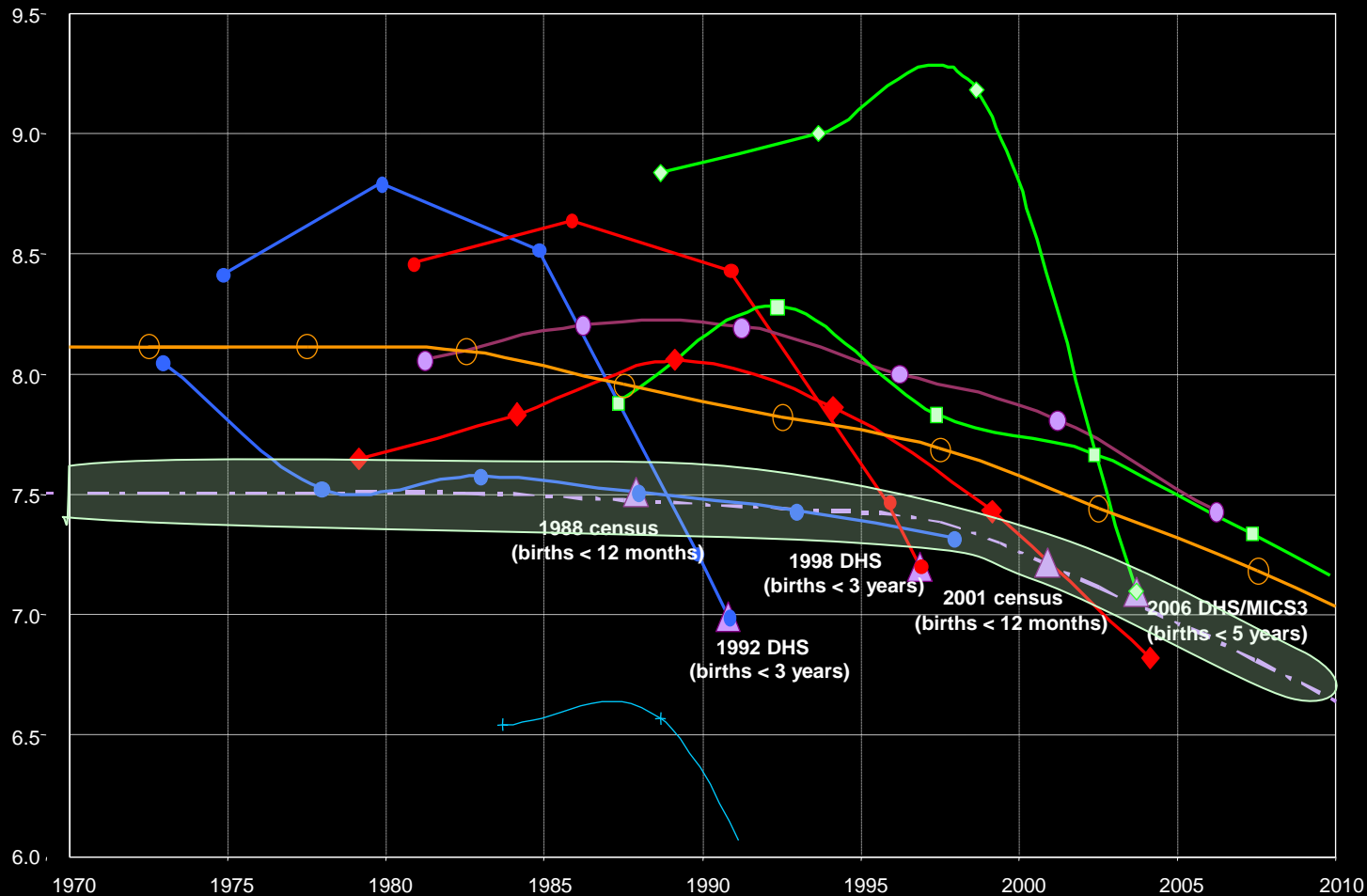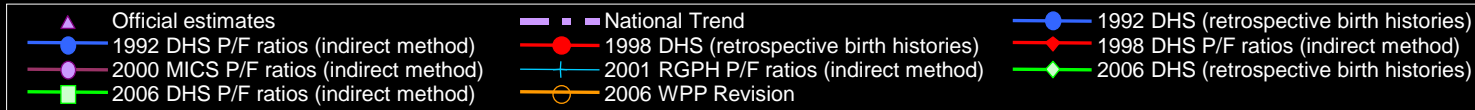
Estimating the past: Best estimate

Demography and migration

- When data on migration flows are not available or incomplete, then migration estimates are produced by applying the balance equation of demography:

$$P_1 = P_0 + B - D + I - E$$
$$P_1 = P_0 + NC + NM$$
$$NM = P_1 - P_0 - NC$$

- Migration estimates often containing the error of closure of the general balancing equation:

$$P_1 = P_0 + NC + NM + \varepsilon$$
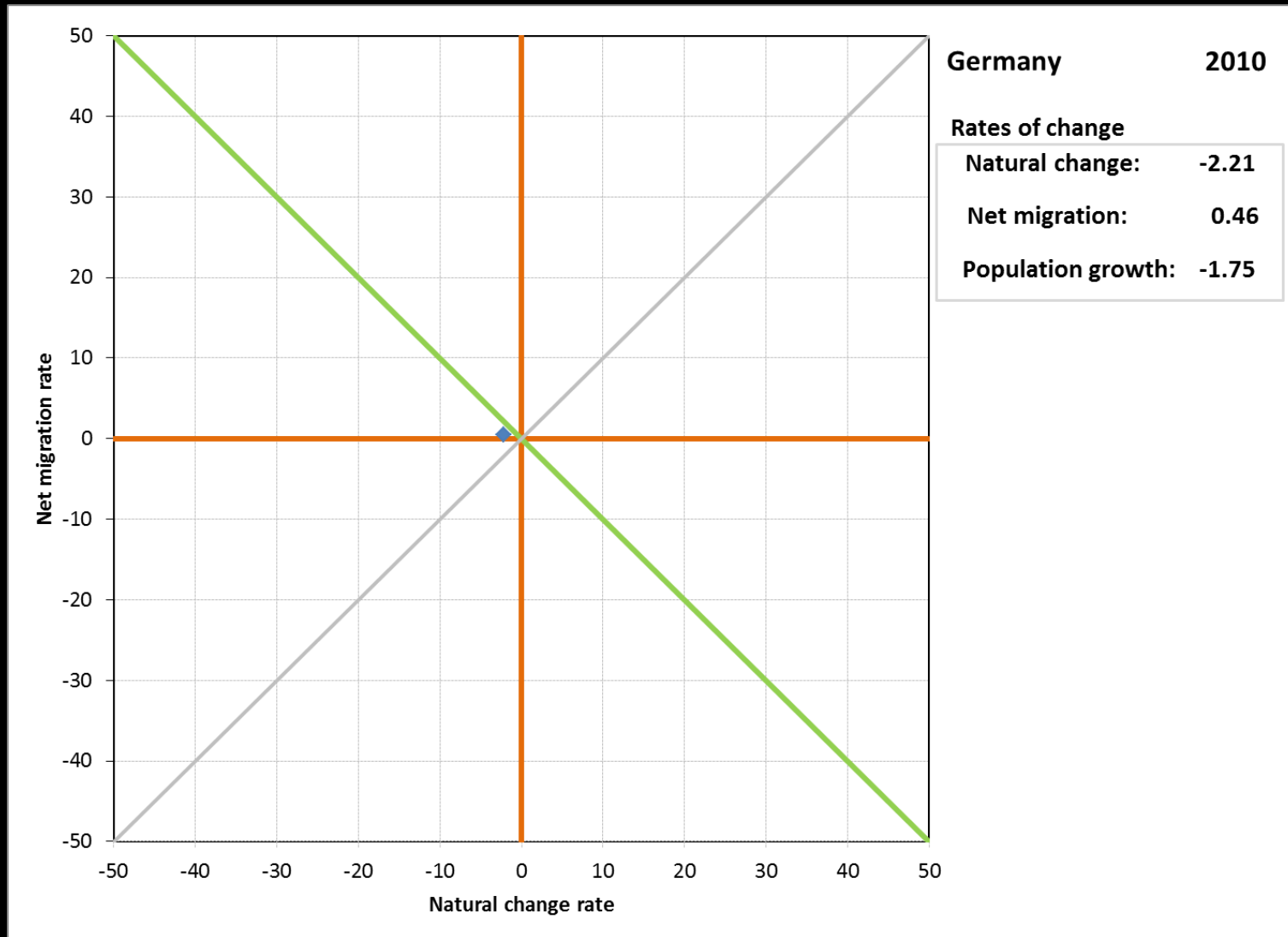$$P_1 = P_0 + NC + [NM + \varepsilon]$$

Demography and migration

- In order to create a consistent set of past estimates, net migration is often combined with the error that cannot be allocated elsewhere.
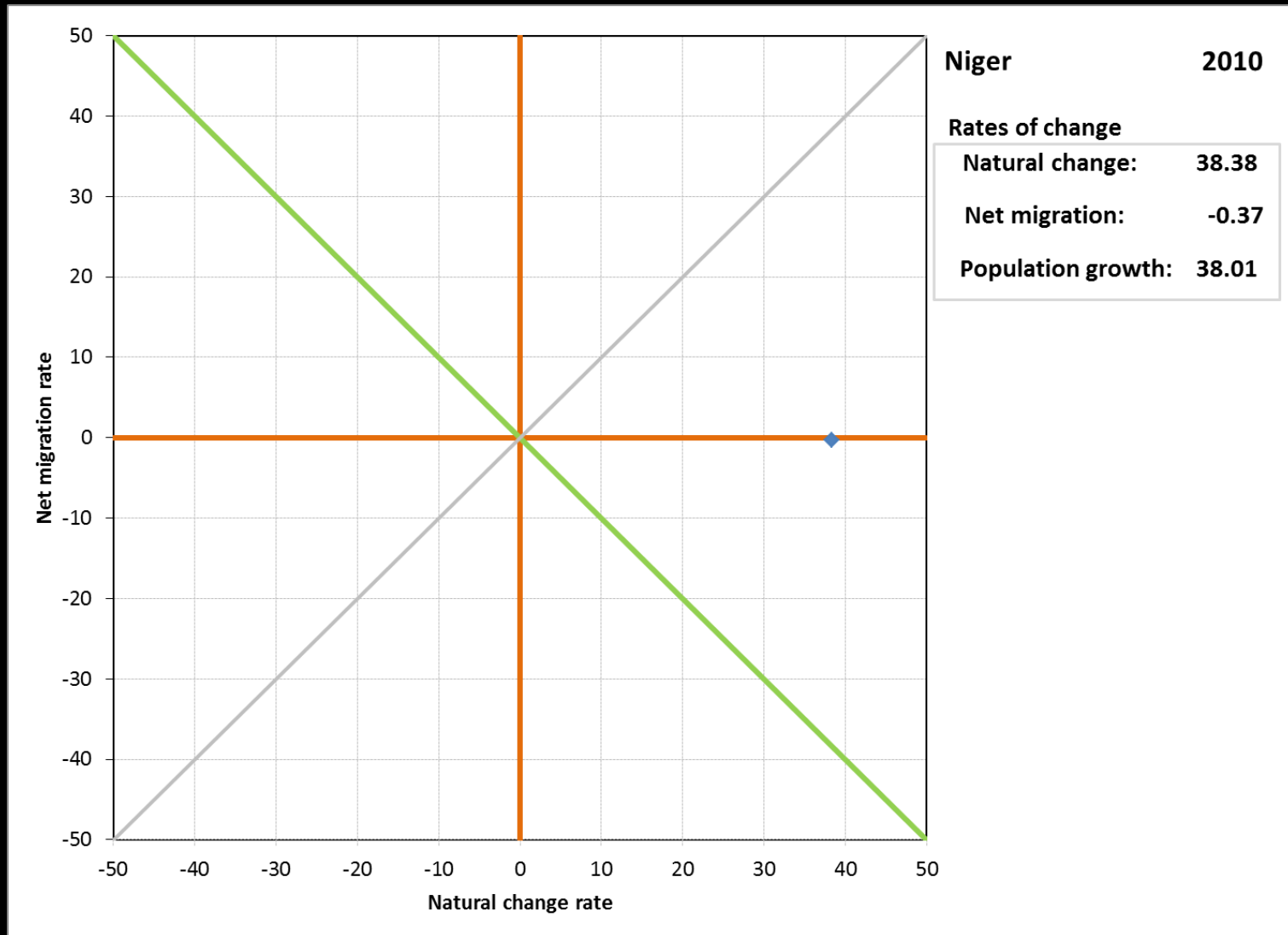
How important is international migration?

- Contribution of migration to population change by comparing the rates of natural change and the net migration rates
- If both rates are positive, they both contribute to population growth
- If both rates are negative, they both contribute to population decline
- If the two rates have different signs, they may reduce growth or reduce decline.

Components of change: Slowing decline

Germany — 2010

Rates of change

Natural change:	-2.21
Net migration:	0.46
Population growth:	-1.75

Components of change: No impact

Niger   2010

Rates of change

Natural change:	38.38
Net migration:	-0.37
Population growth:	38.01

Components of change: Adding to growth

Oman   2010

Rates of change

Natural change: 20.65

Net migration: 43.41

Population growth: 64.06
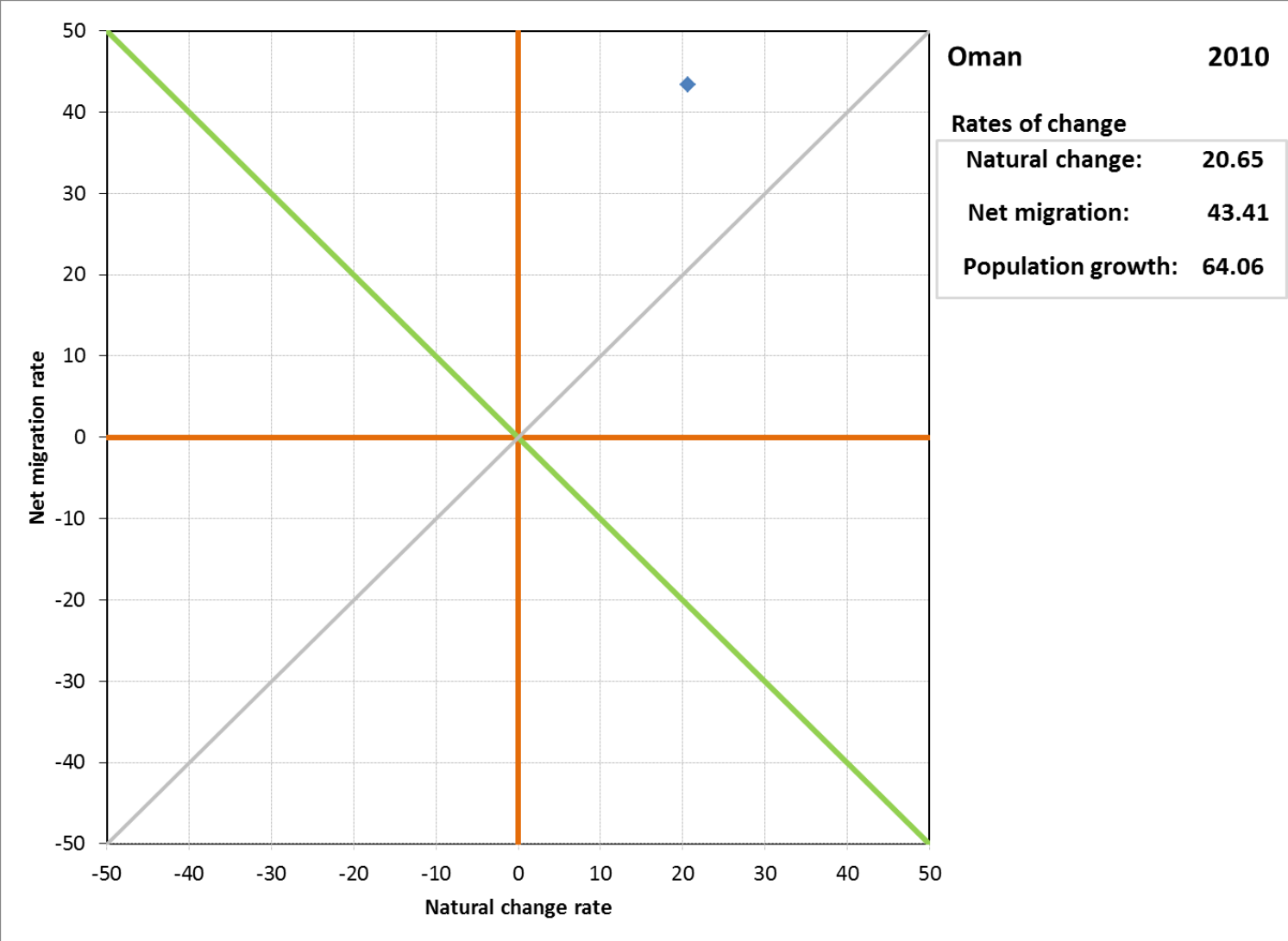
Components of change: Slowing growth

Timor-Leste **2010**

Rates of change

Natural change:	30.22
Net migration:	-15.36
Population growth:	14.86
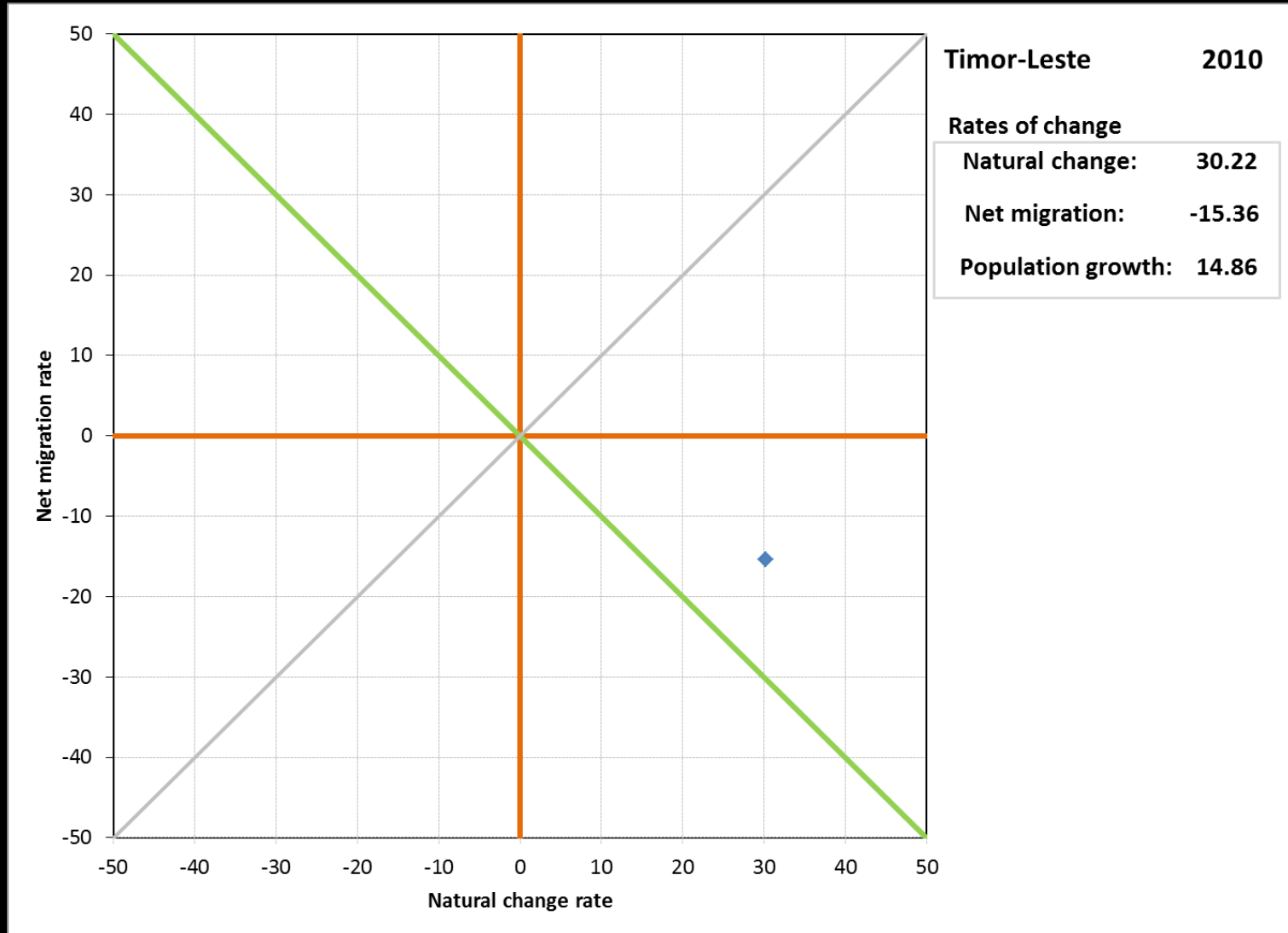
Components of change: Accelerating decline
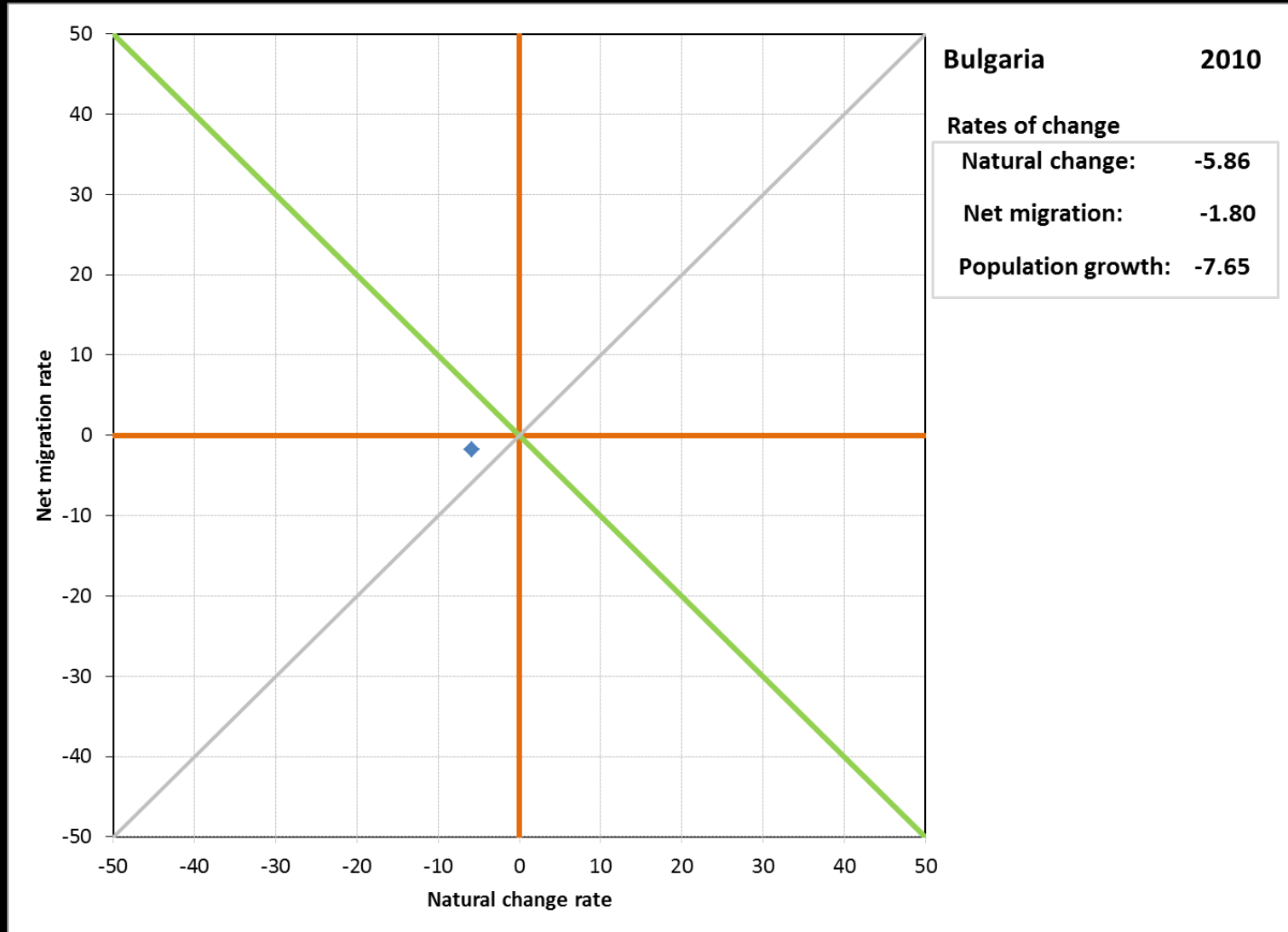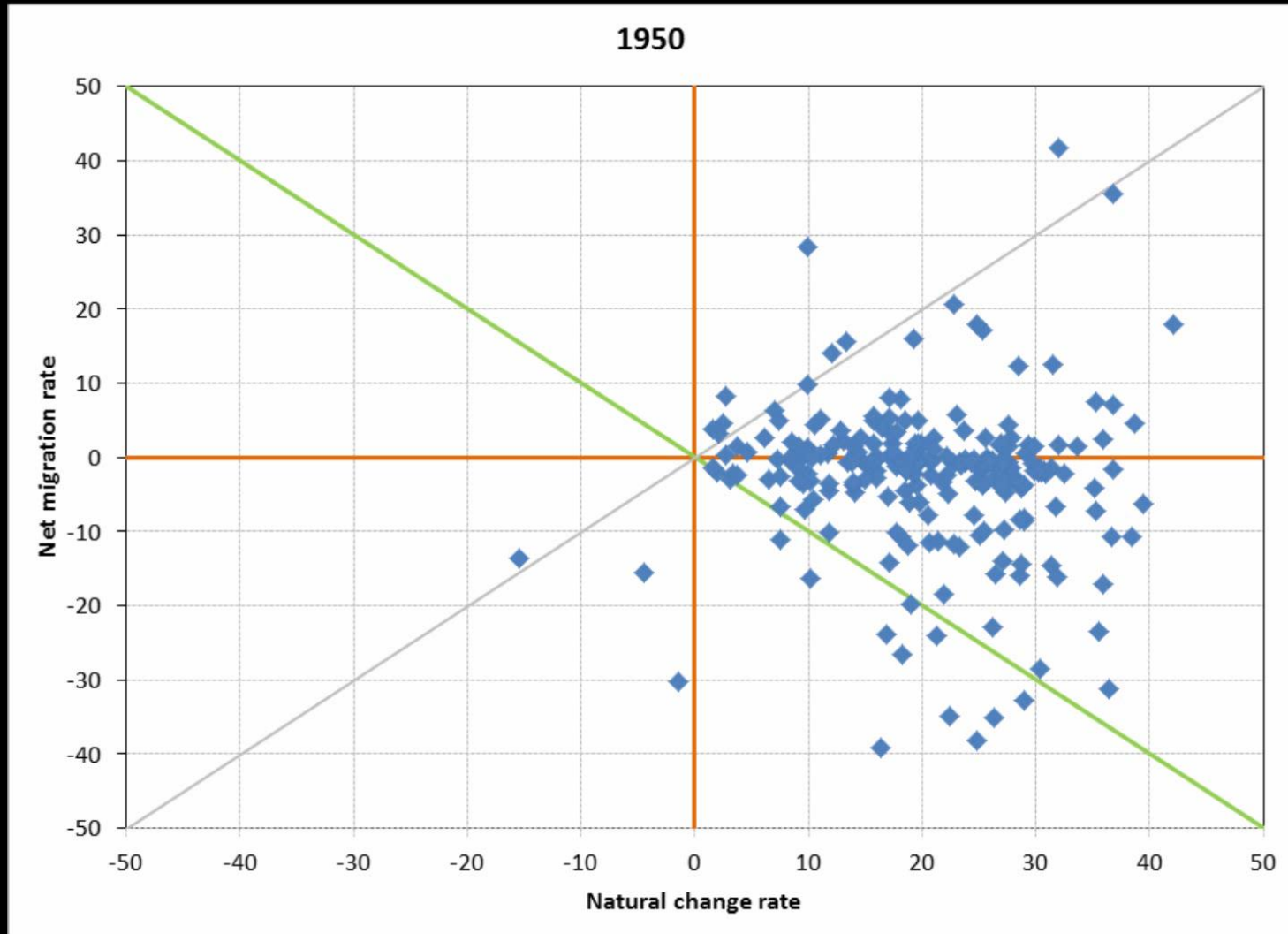
Components of change 2010
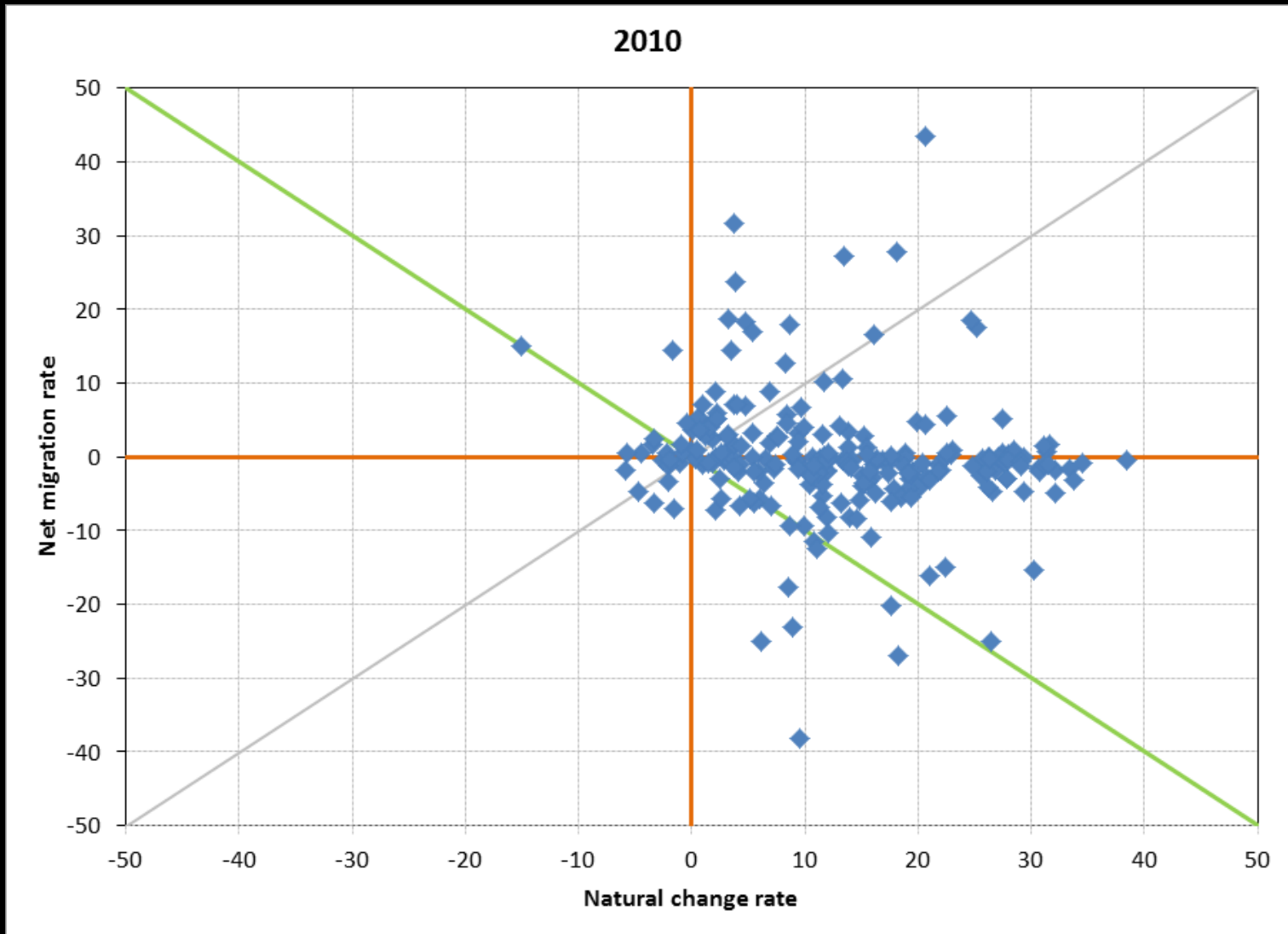
Components of change, animated

Major trends according to estimates

- Examining current net migration estimates and projections from the three major providers gives a picture complex picture.

- The ranking of countries by net migration for 2005-2009 is not identical

- In some cases, even the signs are different

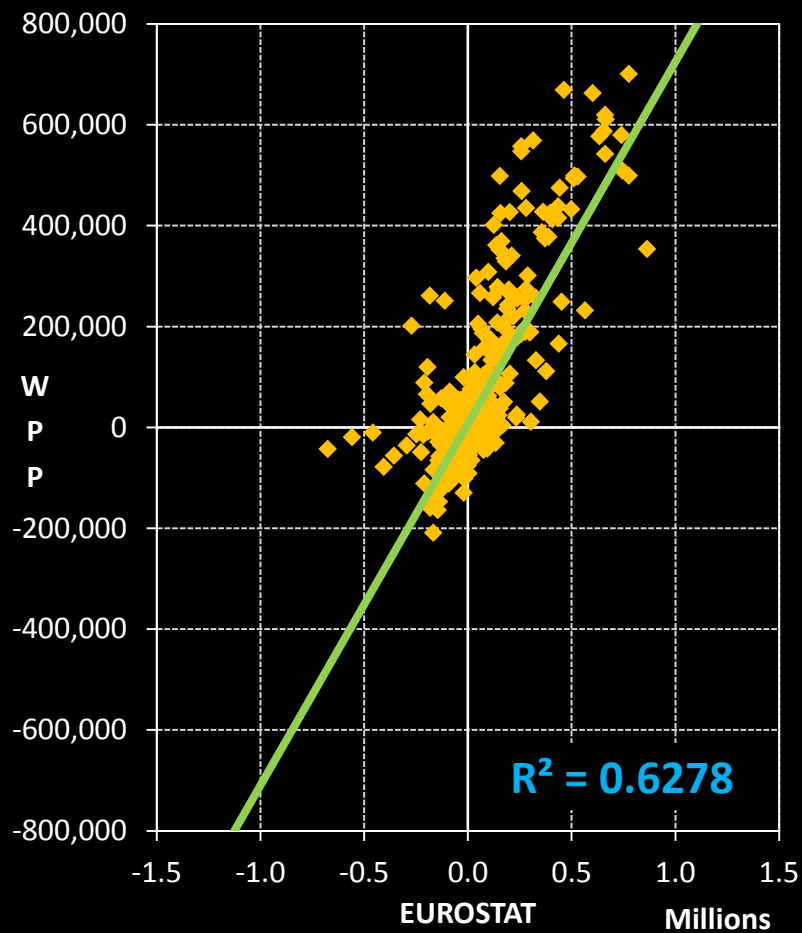# Ten countries with largest net out- and in-migration 2005-2009, by source

Rank	Country	UN/WPP	Rank	Country	US/IPC
1	Bangladesh	-3,638,955	1	Bangladesh	-2,834,143
2	India	-3,520,145	2	Pakistan	-2,463,706
3	Mexico	-2,165,066	3	China	-2,071,284
4	China	-1,768,671	4	Indonesia	-1,489,719
5	Pakistan	-1,652,798	5	Mexico	-1,364,207
6	Philippines	-1,337,802	6	Zimbabwe	-977,696
7	Zimbabwe	-854,099	7	Philippines	-749,902
8	Myanmar	-851,788	8	Morocco	-646,643
9	Viet Nam	-843,695	9	Nepal	-586,967
10	Nepal	-842,827	10	Peru	-525,198
10	United Kingdom	928,982	10	Australia	657,925
9	Australia	1,136,139	9	Qatar	677,174
8	Syrian Arab Republic	1,143,699	8	Canada	898,606
7	Canada	1,256,390	7	South Africa	934,115
6	South Africa	1,371,408	6	United Kingdom	961,339
5	Italy	1,993,177	5	Syrian Arab Republic	1,352,307
4	Spain	2,416,659	4	Russian Federation	1,479,888
3	Russian Federation	2,471,475	3	Italy	1,747,460
2	United Arab Emirates	3,721,031	2	Spain	2,496,953
1	United States of America	5,375,069	1	United States of America	

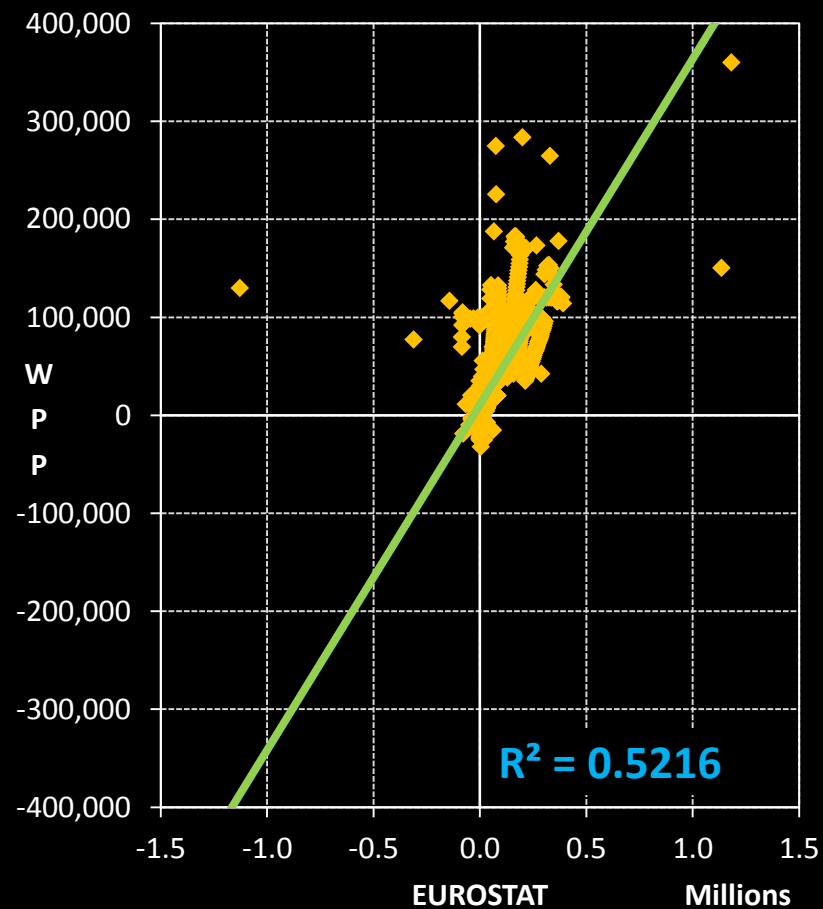# Ten countries with largest net out- and in-migration rates 2005-2009, by source

Rank	Country	UN/WPP		Rank	Country	US/IPC
1	Zimbabwe	-13.38		1	Zimbabwe	-17.04
2	Timor-Leste	-12.51		2	El Salvador	-10.99
3	Albania	-10.78		3	Timor-Leste	-10.27
4	Lithuania	-10.46		4	Republic of Moldova	-10.17
5	Republic of Moldova	-9.95		5	Albania	-9.68
6	El Salvador	-9.71		6	Lesotho	-9.42
7	Armenia	-9.30		7	Trinidad and Tobago	-7.61
8	Latvia	-8.22		8	Kyrgyzstan	-6.69
9	Puerto Rico	-7.60		9	Somalia	-6.24
10	Jamaica	-7.37		10	Jamaica	-6.07
10	Australia	10.69		10	Ireland	11.25
9	Spain	10.83		9	Congo	12.34
8	Syrian Arab Republic	11.68		8	Syrian Arab Republic	13.33
7	Jordan	14.05		7	Cyprus	13.67
6	South Sudan	16.95		6	Jordan	13.95
5	Singapore	19.11		5	Singapore	17.88
4	Kuwait	34.01		4	Liberia	20.08
3	Bahrain	56.80		3	United Arab Emirates	26.15
2	United Arab Emirates	126.83		2	Bahrain	40.83
1	Qatar	138.78		1	Qatar	106.69

# Ten EUROSTAT countries with largest net out- and in-migration 2005-2009, by source

Rank	Location	EUROSTAT	US/IPC	UN/WPP
1	Romania	-904,615	-32,058	-46,342
2	Lithuania	-145,981	-12,801	-166,978
3	Belarus	-145,678	32,671	52,266
4	Poland	-85,558	-88,979	-60,268
5	Latvia	-84,549	-25,675	-89,138
6	Bulgaria	-53,329	-135,993	-80,423
7	Armenia	-31,776	-92,399	-139,099
8	Albania	-28,818	-145,067	-170,893
9	Estonia	-17,556	-21,187	-13,612
10	Republic of Moldova	-14,854	-196,149	-183,069
10	Czech Republic	232,025	255,036	297,005
9	Sweden	249,653	250,997	263,075
8	Belgium	288,023	63,487	342,395
7	Switzerland	301,164	224,792	338,020
6	Turkey	361,867	224,053	-79,266
5	France	490,483	415,630	593,334
4	Russian Federation	1,055,101	1,479,888	2,471,475
3	Italy	1,364,695	1,747,460	1,993,177
2	United Kingdom	1,369,091	961,339	928,982
1	Spain	2,645,920	2,496,953	2,416,659

Left chart — Y-axis (WPP): 800,000 / 600,000 / 400,000 / 200,000 / 0 / -200,000 / -400,000 / -600,000 / -800,000. X-axis (EUROSTAT, Millions): -1.5 / -1.0 / -0.5 / 0.0 / 0.5 / 1.0 / 1.5. R² = 0.6278

Right chart — Y-axis (WPP): 400,000 / 300,000 / 200,000 / 100,000 / 0 / -100,000 / -200,000 / -300,000 / -400,000. X-axis (EUROSTAT, Millions): -1.5 / -1.0 / -0.5 / 0.0 / 0.5 / 1.0 / 1.5. R² = 0.5216

Comparison of migration estimates
EUROSTAT vs. UN/WPP

Comparison of migration projections
EUROSTAT vs. UN/WPP
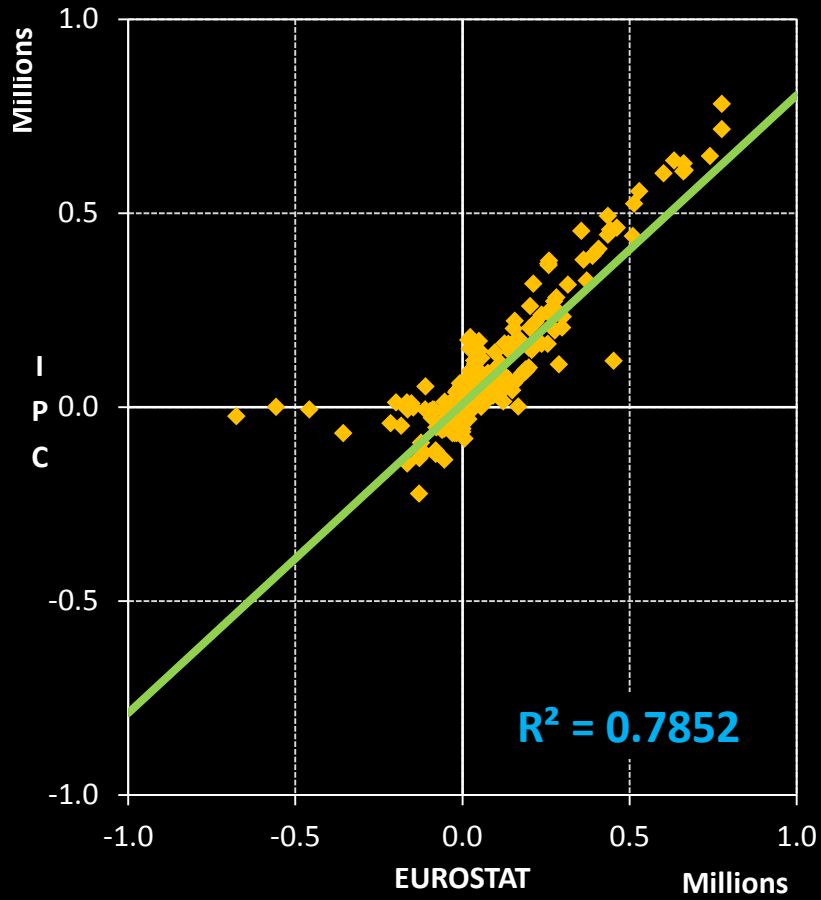
Comparison of migration estimates
EUROSTAT vs. US/IPC
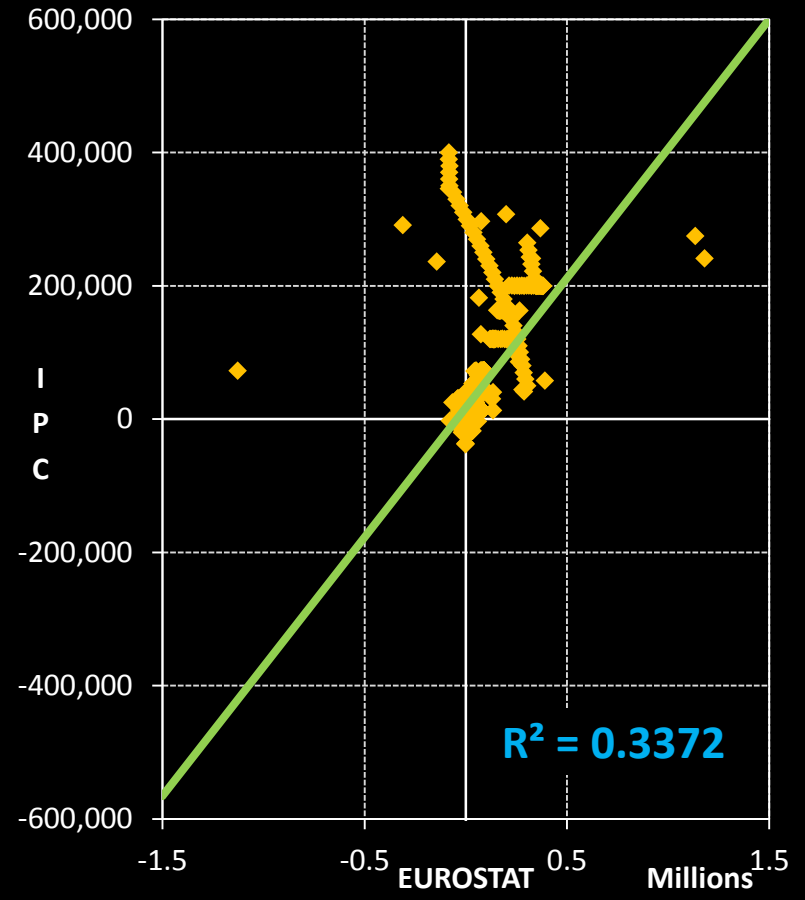
Comparison of migration projections
EUROSTAT vs. US/IPC
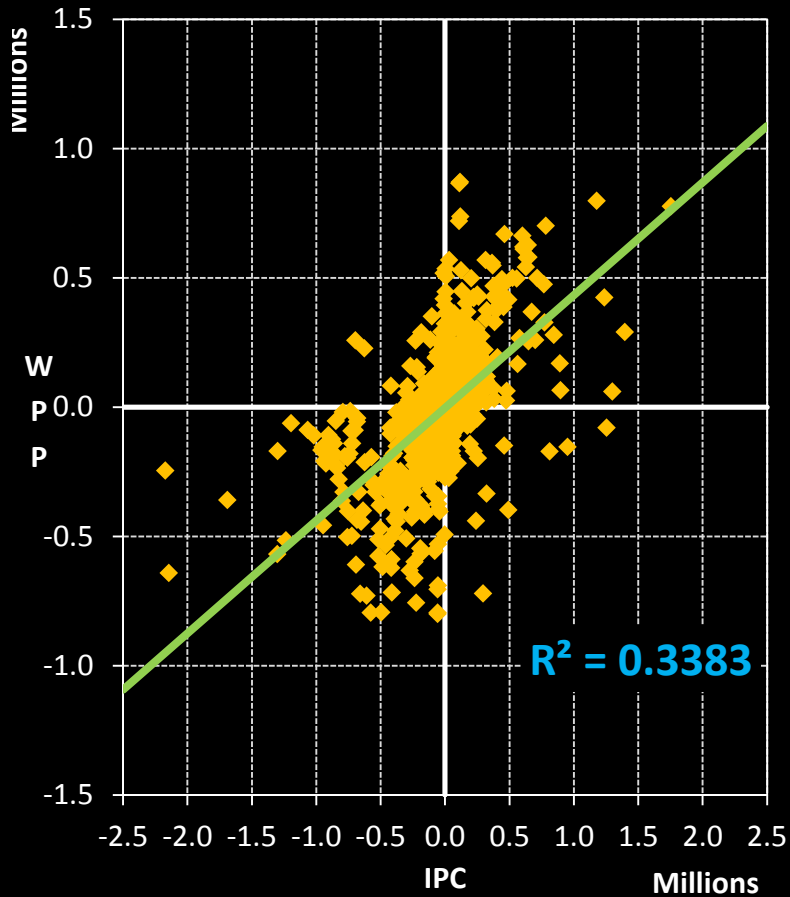
Comparison of migration estimates
US/IPC vs. UN/WPP
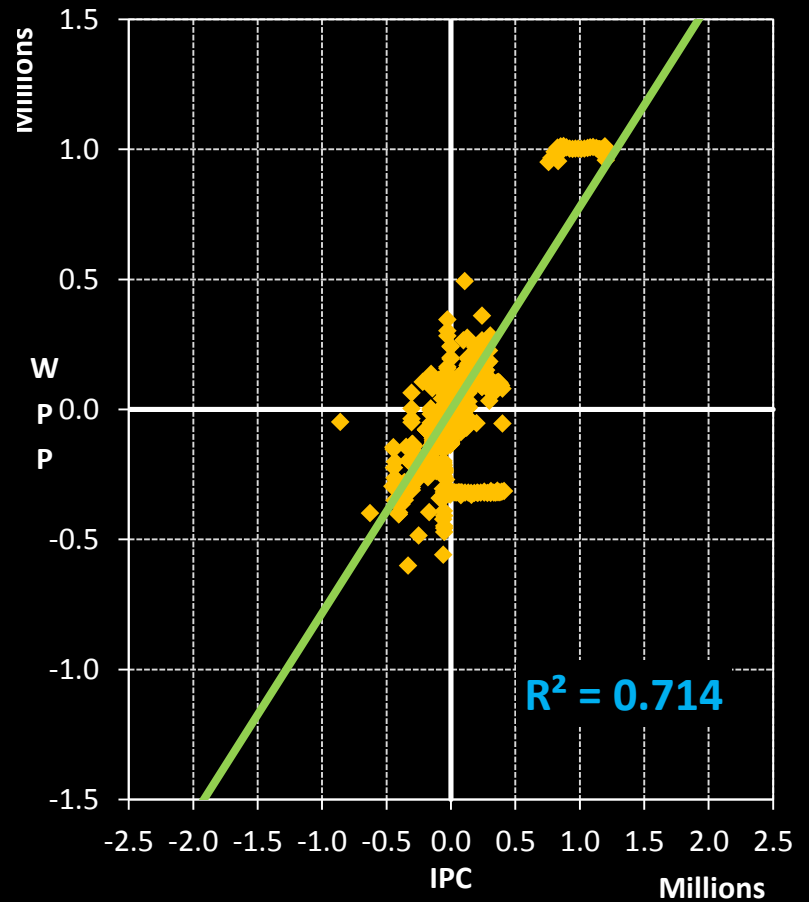
Comparison of migration projections
US/IPC vs. UN/WPP

The impact of migration in the future

- What is the contribution of international migration to population change?

- Migration-caused gains and losses by comparing the main projection variant to a hypothetical scenario provided by WPP (UN POP), assuming zero net migration starting in 2010

Migration-caused population gains/losses (compared to zero migration projections)

Location	2050
China	-16,108,135
India	-15,663,036
Bangladesh	-13,672,212
Mexico	-11,609,759
Pakistan	-10,037,435
Indonesia	-7,644,585
Philippines	-5,610,033
Morocco	-4,529,738
Nigeria	-3,921,813
Egypt	-3,483,504
Spain	4,968,971
Germany	5,106,840
United Arab Emirates	5,226,135
France	6,114,339
Russian Federation	6,543,021
Italy	7,303,184
Australia	8,744,286
United Kingdom	9,728,644
Canada	11,178,541
United States of America	57,078,608

Location	2050
Samoa	-68%
Grenada	-52%
Tonga	-52%
Timor-Leste	-51%
Micronesia (Fed. States of)	-43%
Guyana	-43%
Fiji	-33%
Jamaica	-31%
El Salvador	-29%
Republic of Moldova	-21%
Norway	20%
Canada	25%
Australia	26%
Luxembourg	28%
Singapore	30%
Kuwait	31%
Switzerland	33%
United Arab Emirates	34%
China, Macao SAR	34%
Qatar	37%

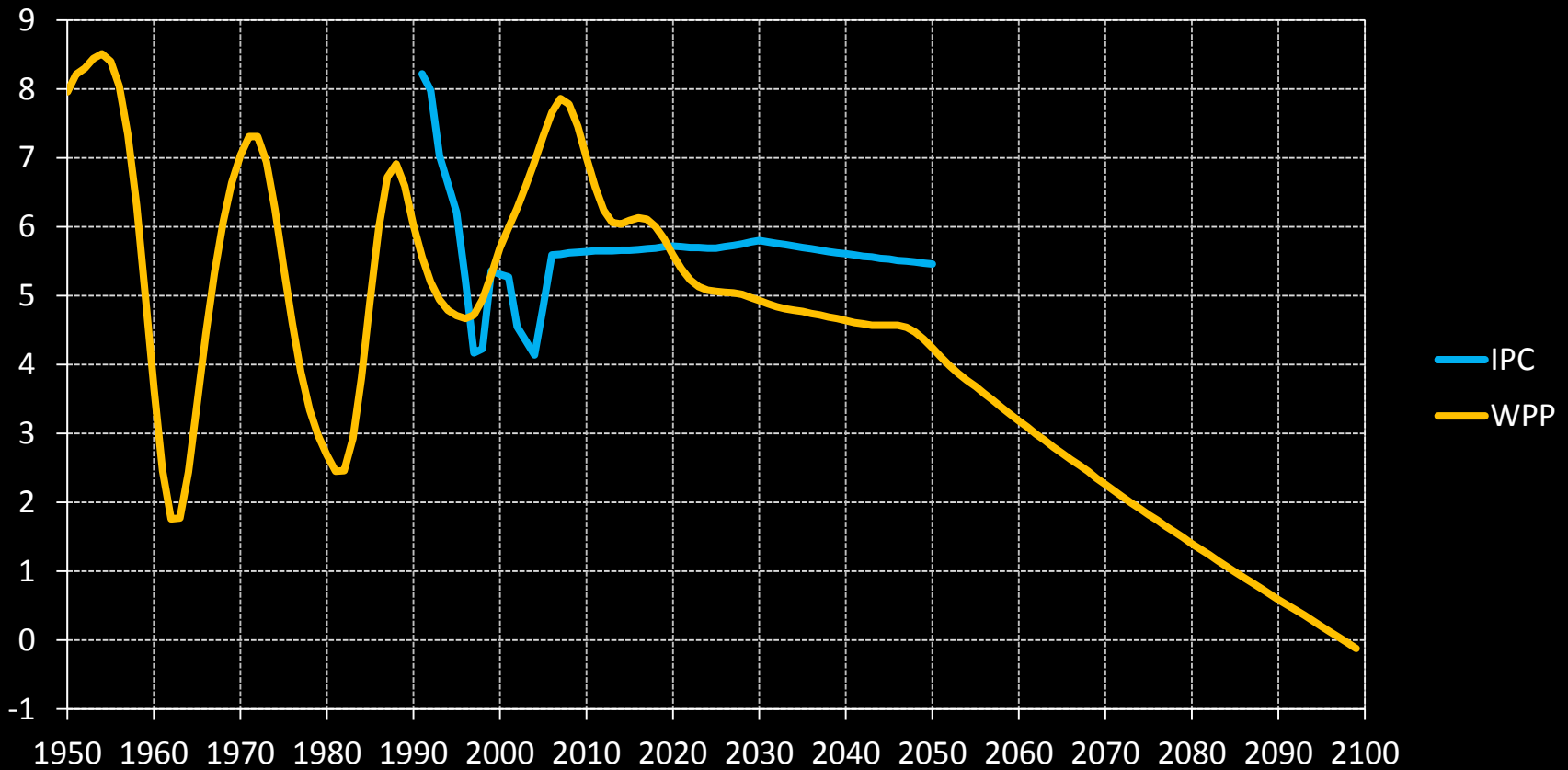# Comparing estimates and projections for selected countries

Comparing estimates and projections

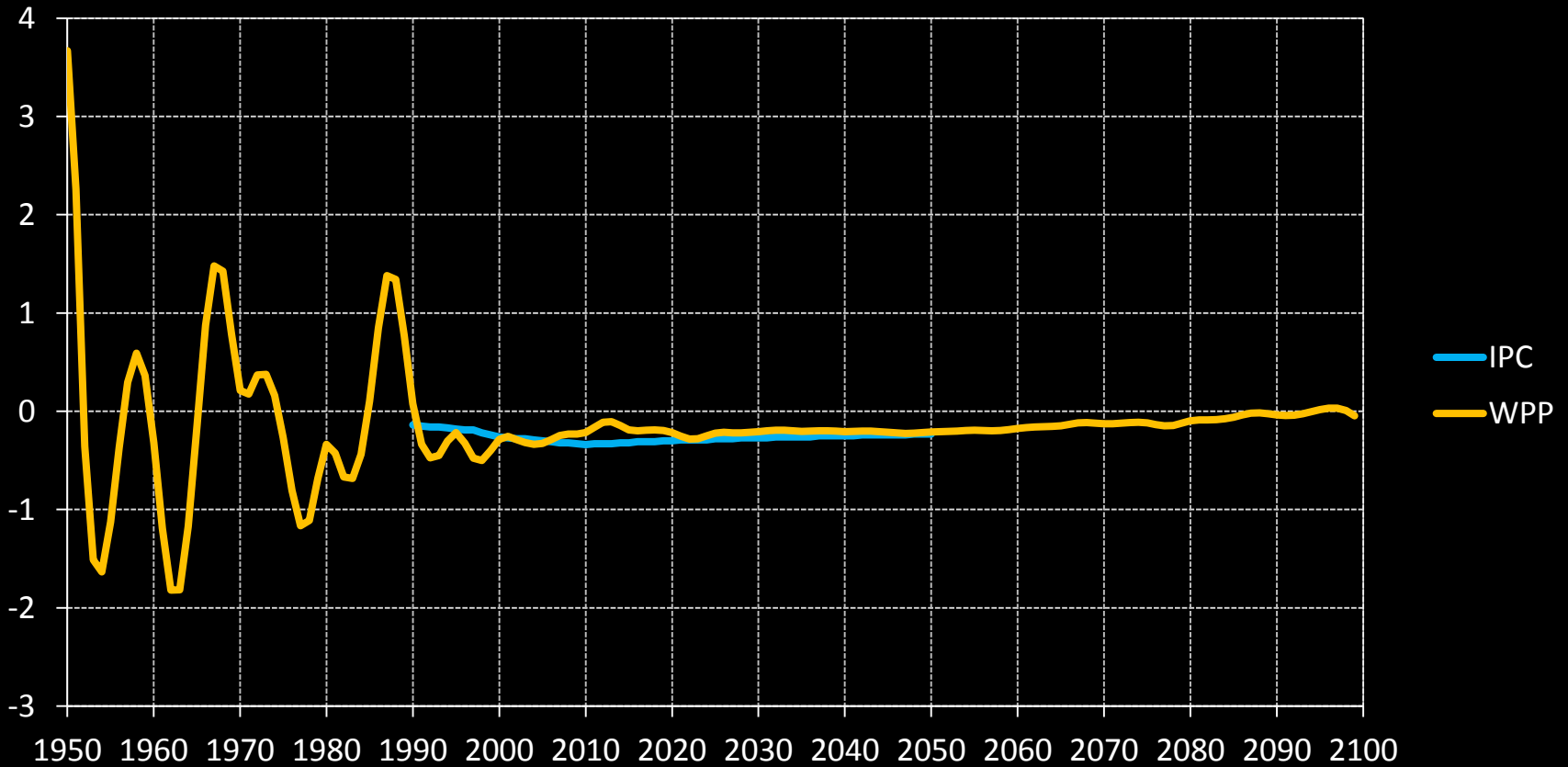Crude Net Migration Rates: Estimates and projections, Australia
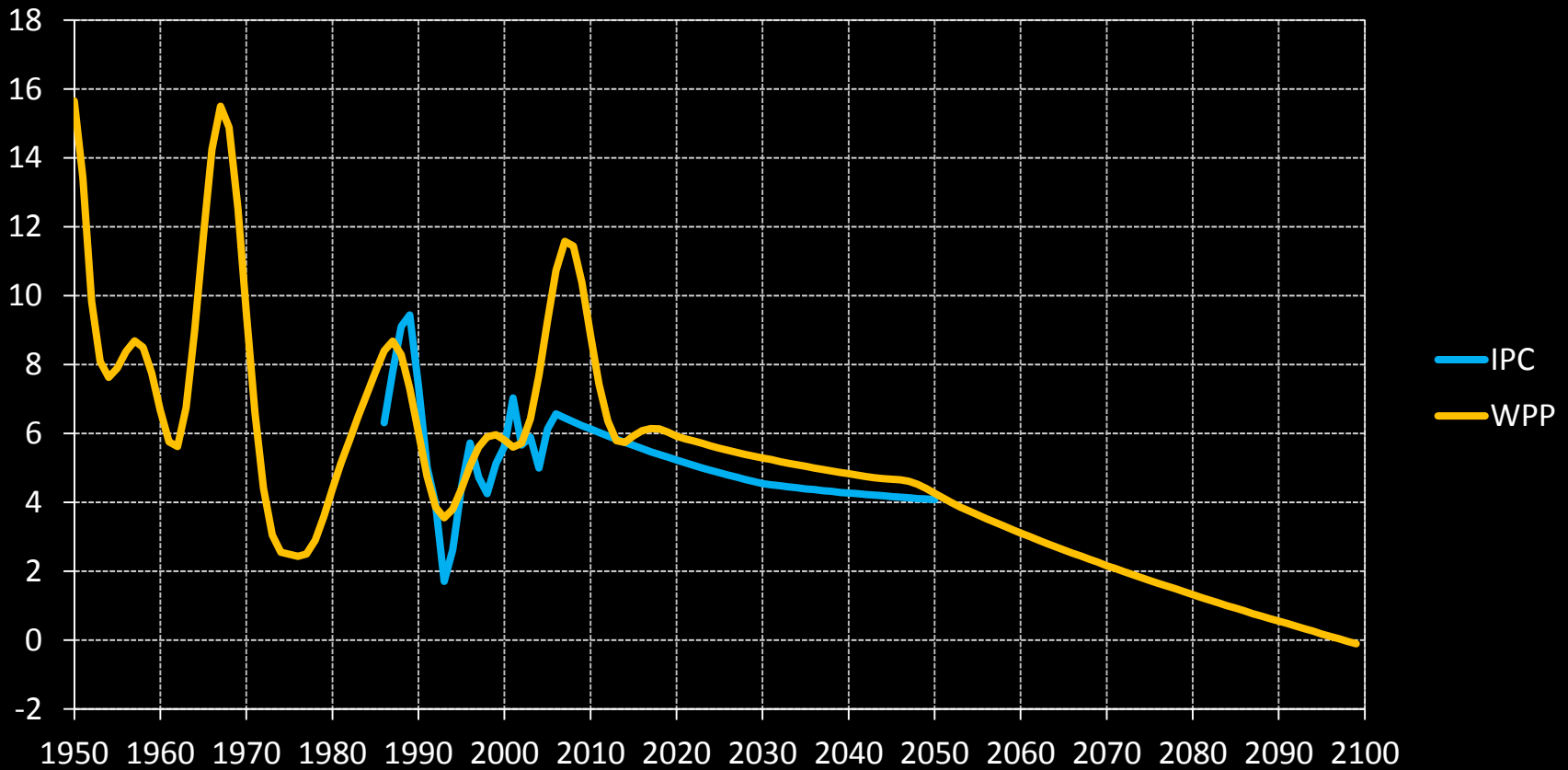
Comparing estimates and projections

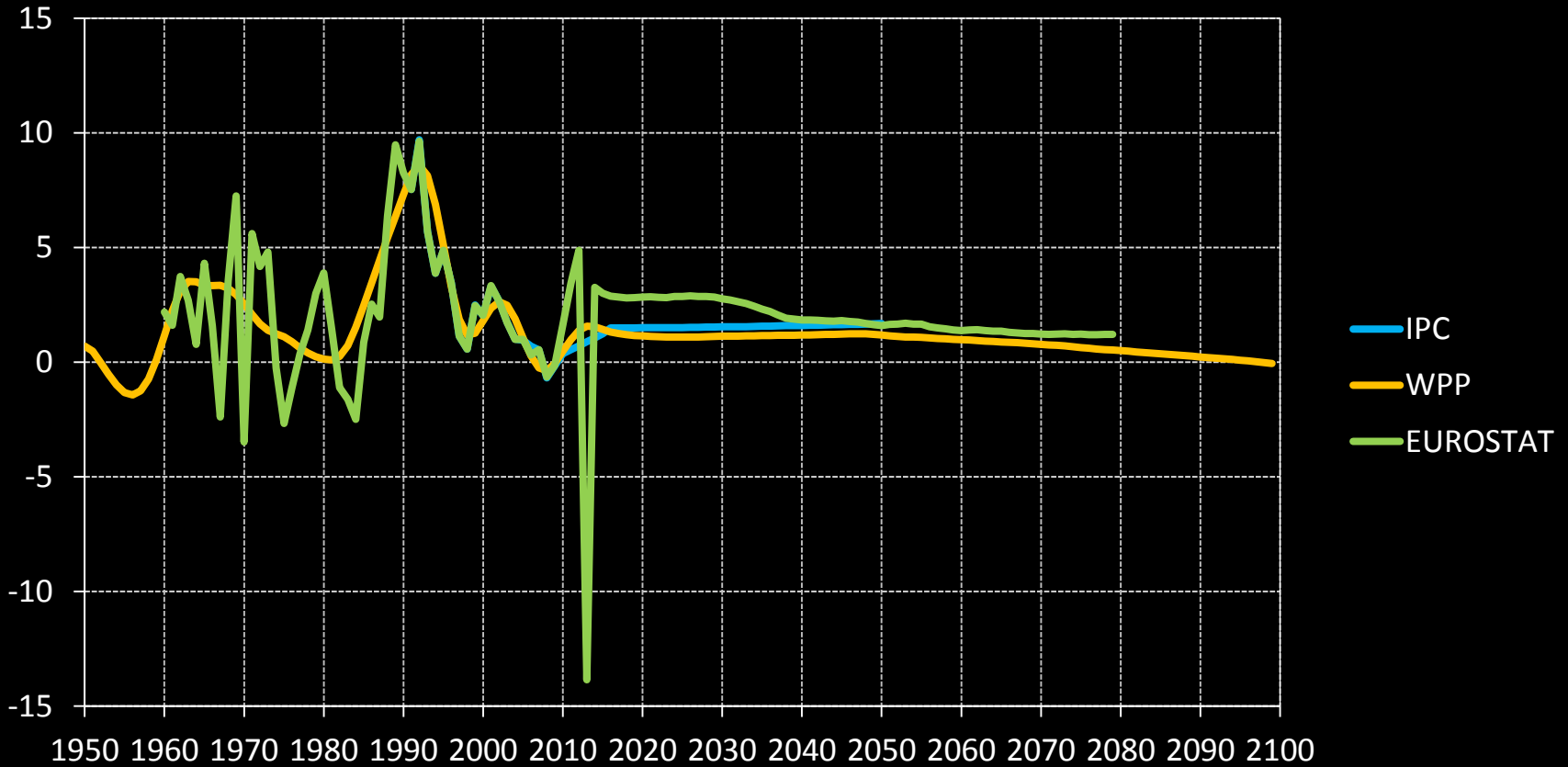
Crude Net Migration Rates: Estimates and projections, Canada

Comparing estimates and projections

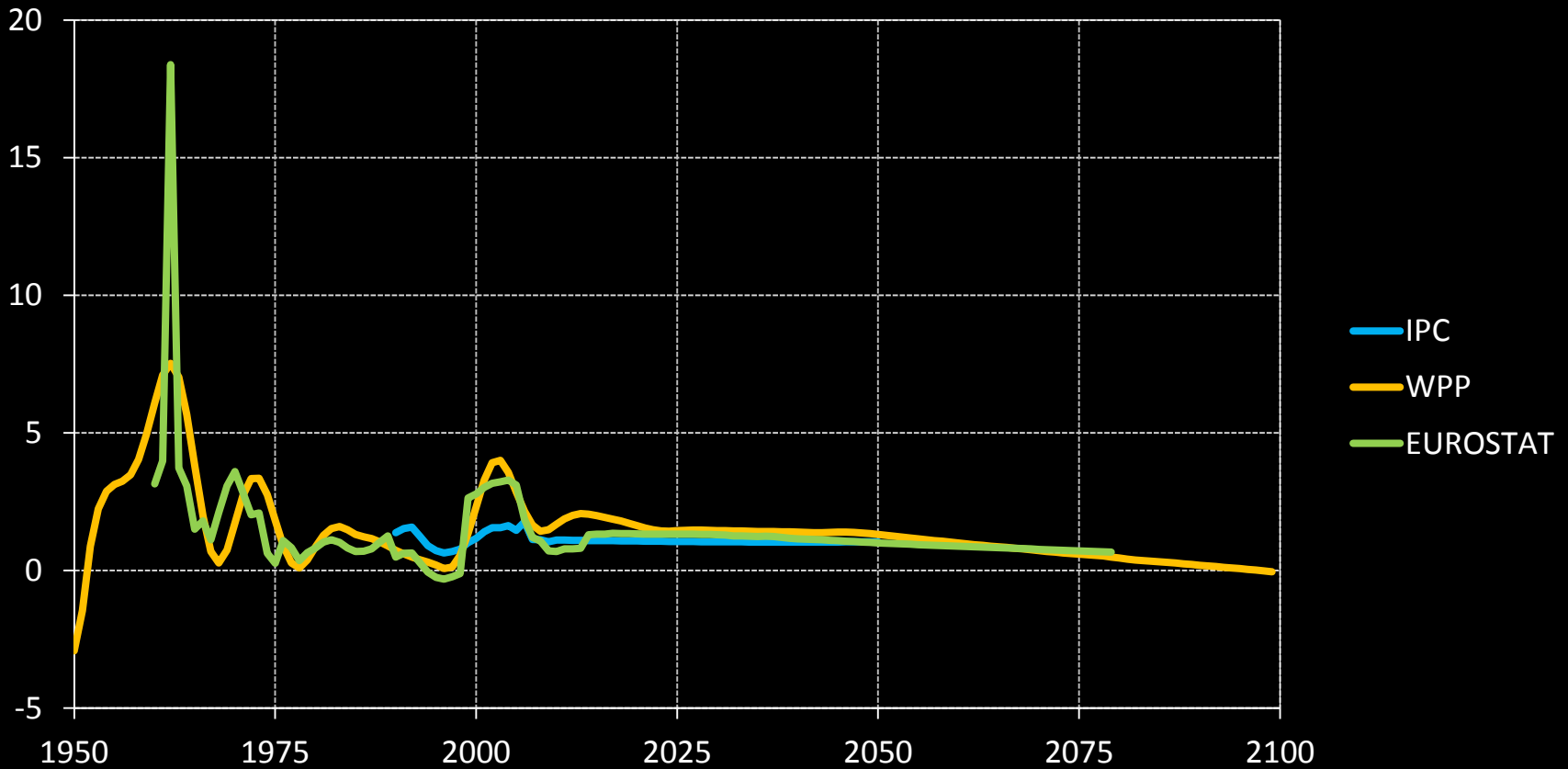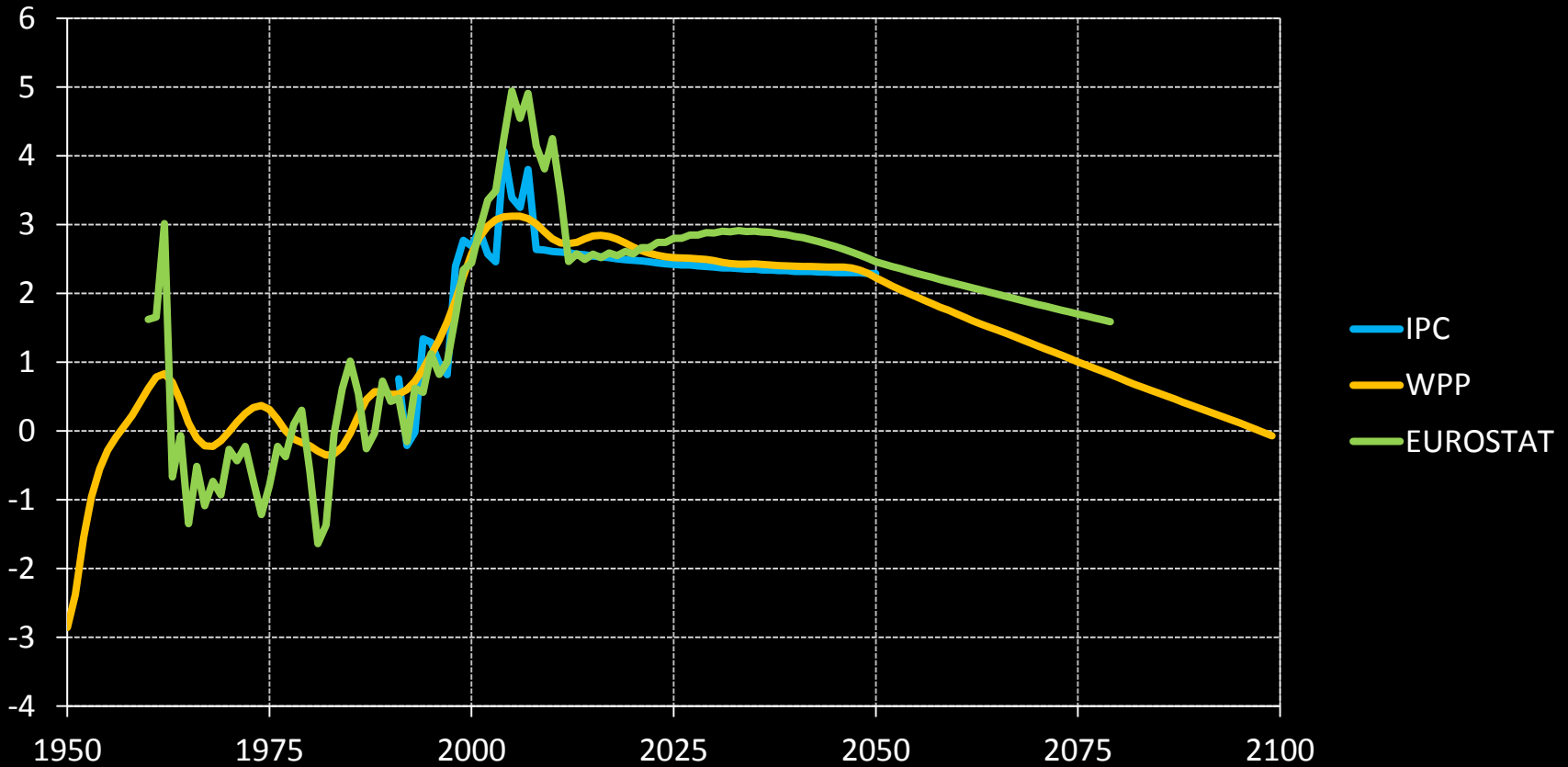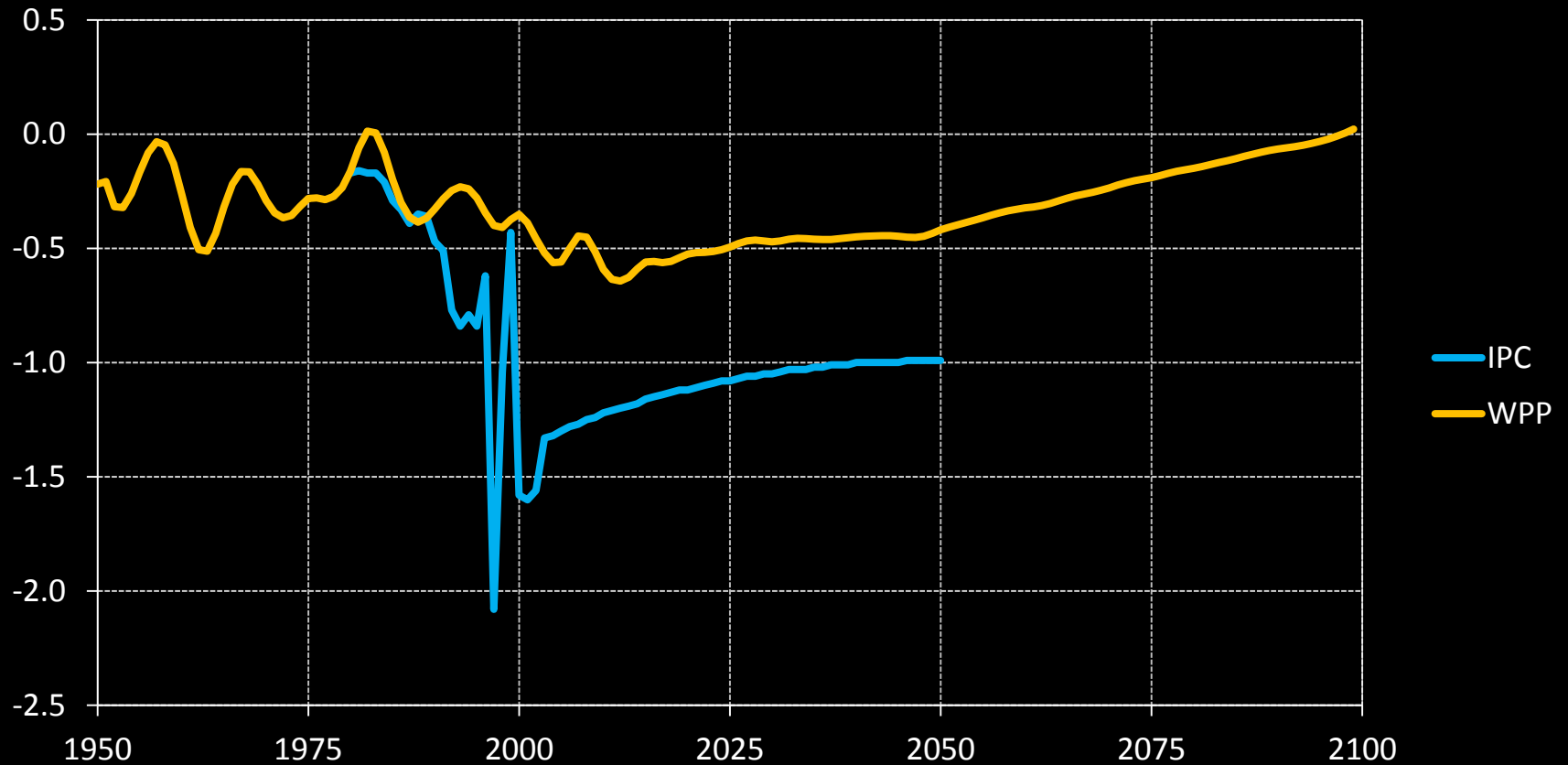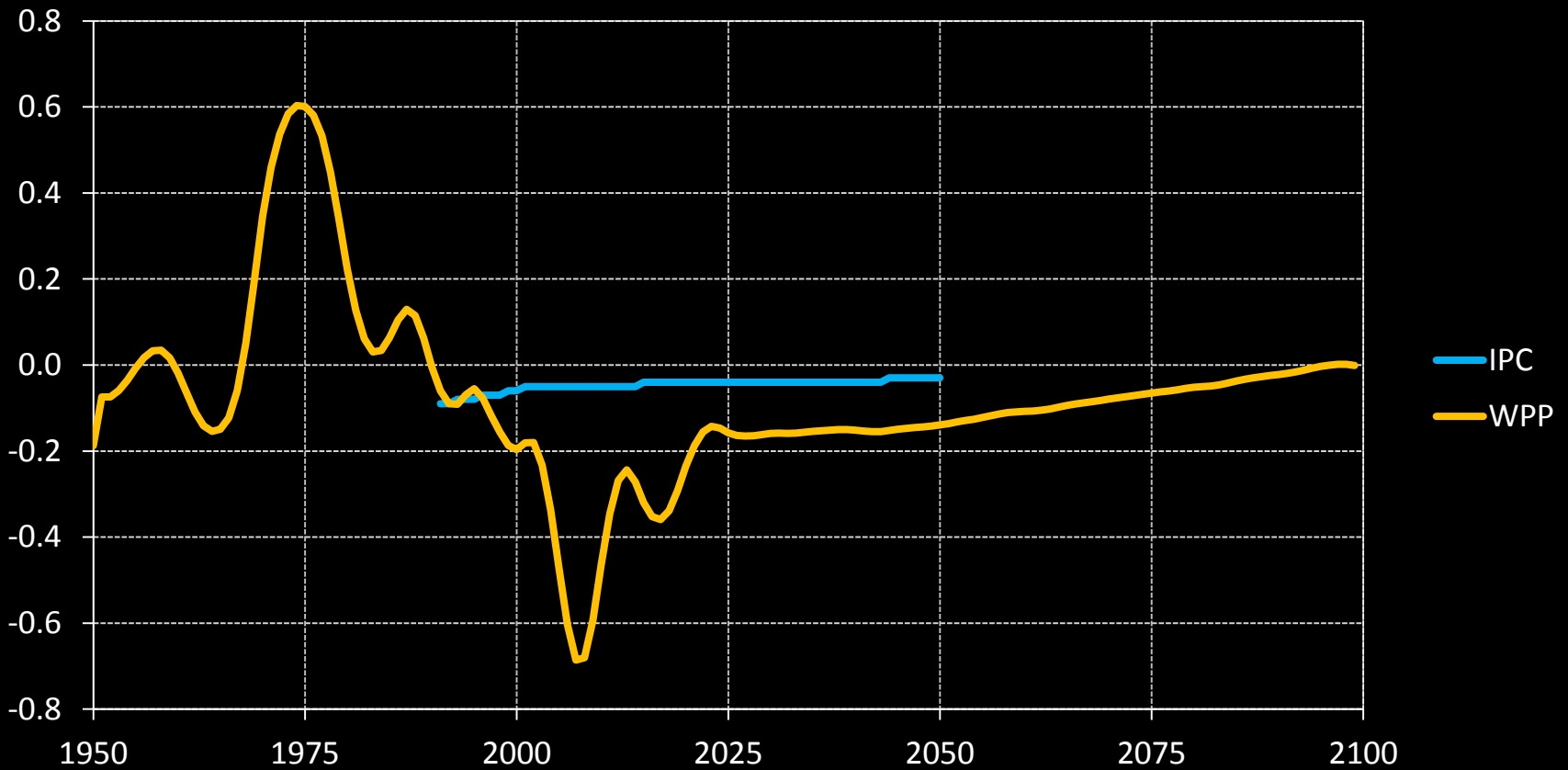**Crude Net Migration Rates: Estimates and projections, China**

Comparing estimates and projections

Crude Net Migration Rates: Estimates and projections, Germany
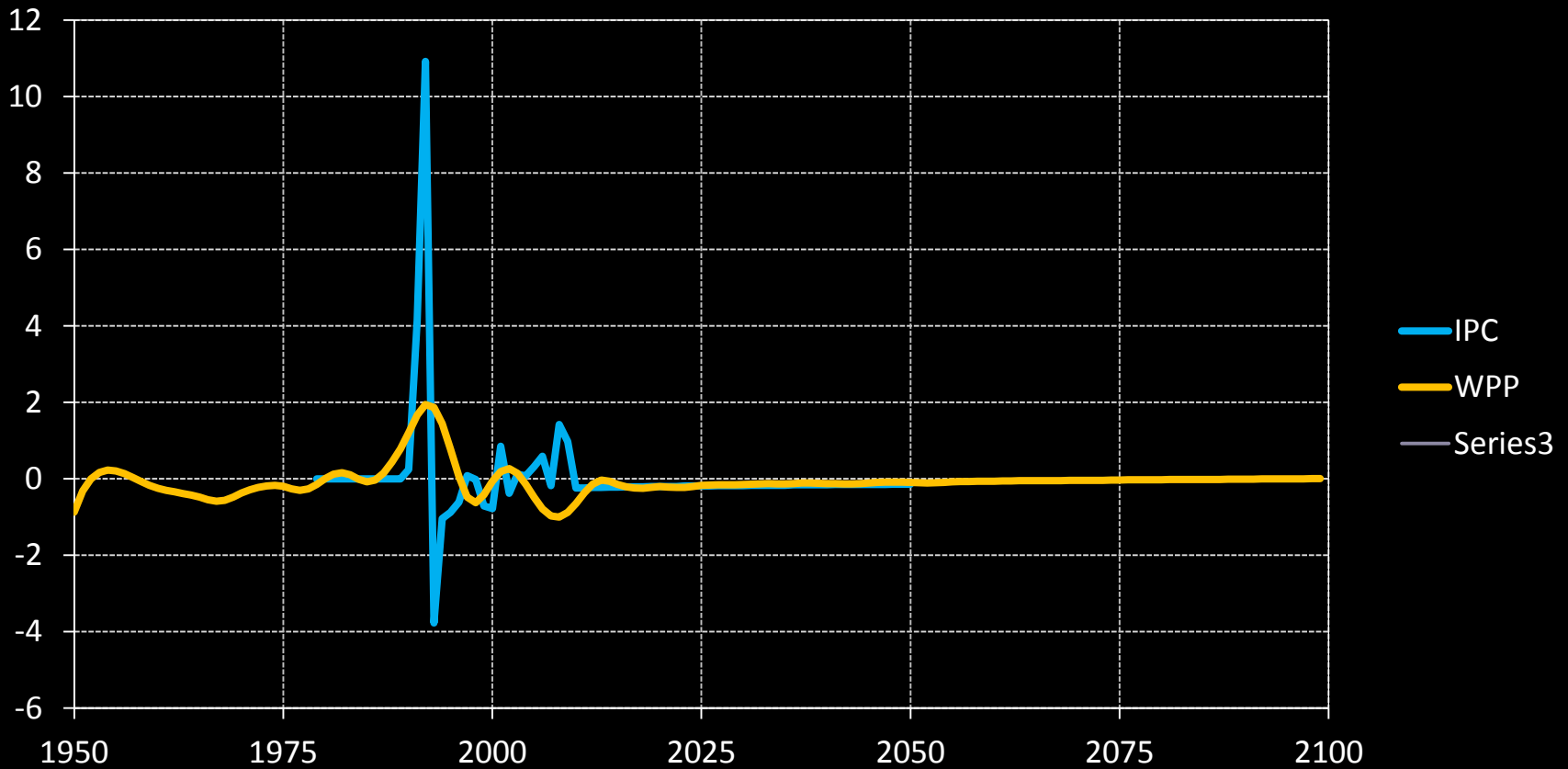
Comparing estimates and projections

Crude Net Migration Rates: Estimates and projections, France

Comparing estimates and projections

Crude Net Migration Rates: Estimates and projections, United Kingdom

Legend: IPC, WPP, EUROSTAT

Comparing estimates and projections

Crude Net Migration Rates: Estimates and projections, Indonesia

Comparing estimates and projections

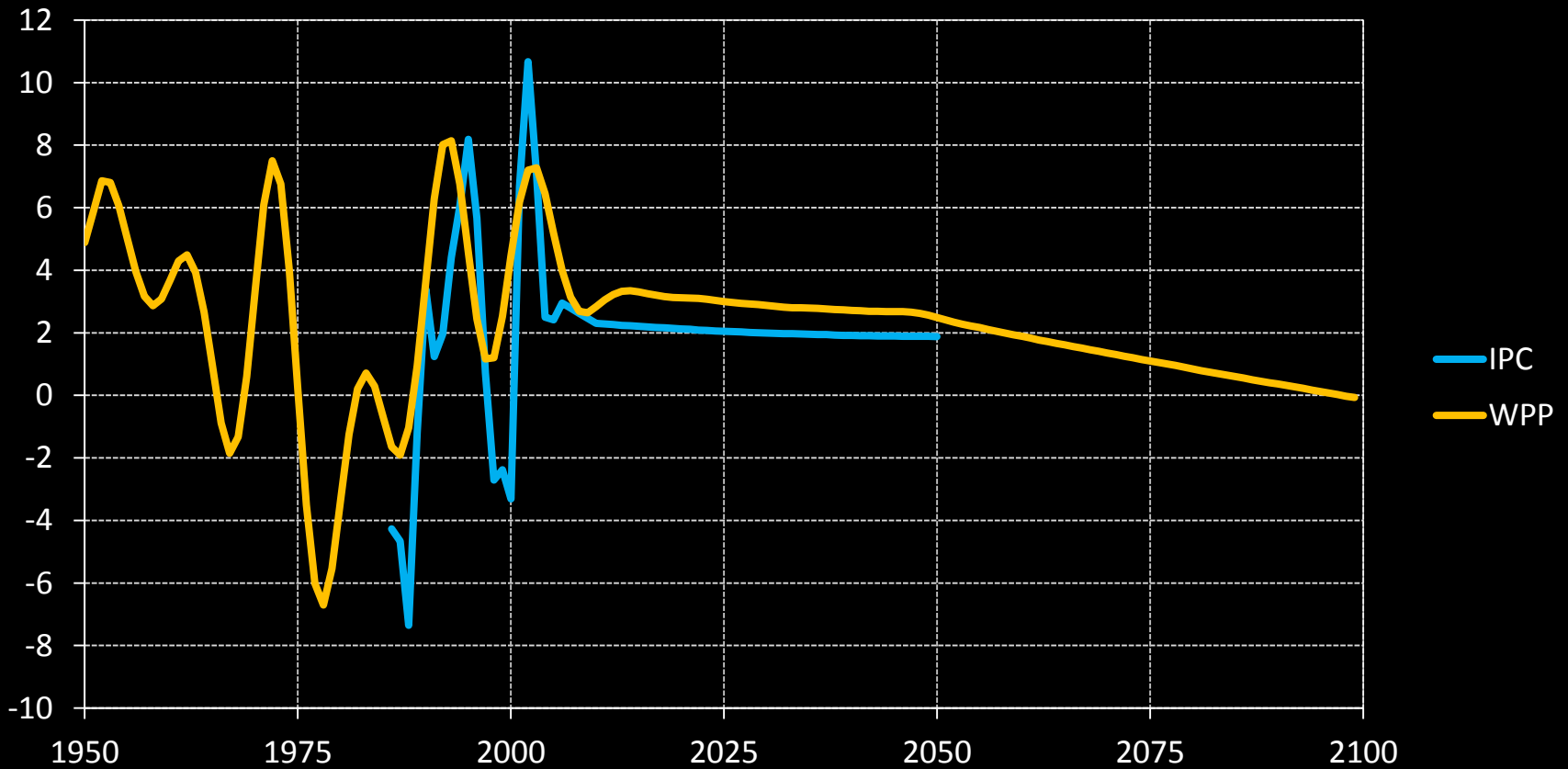
Crude Net Migration Rate estimates and projections, India

Comparing estimates and projections

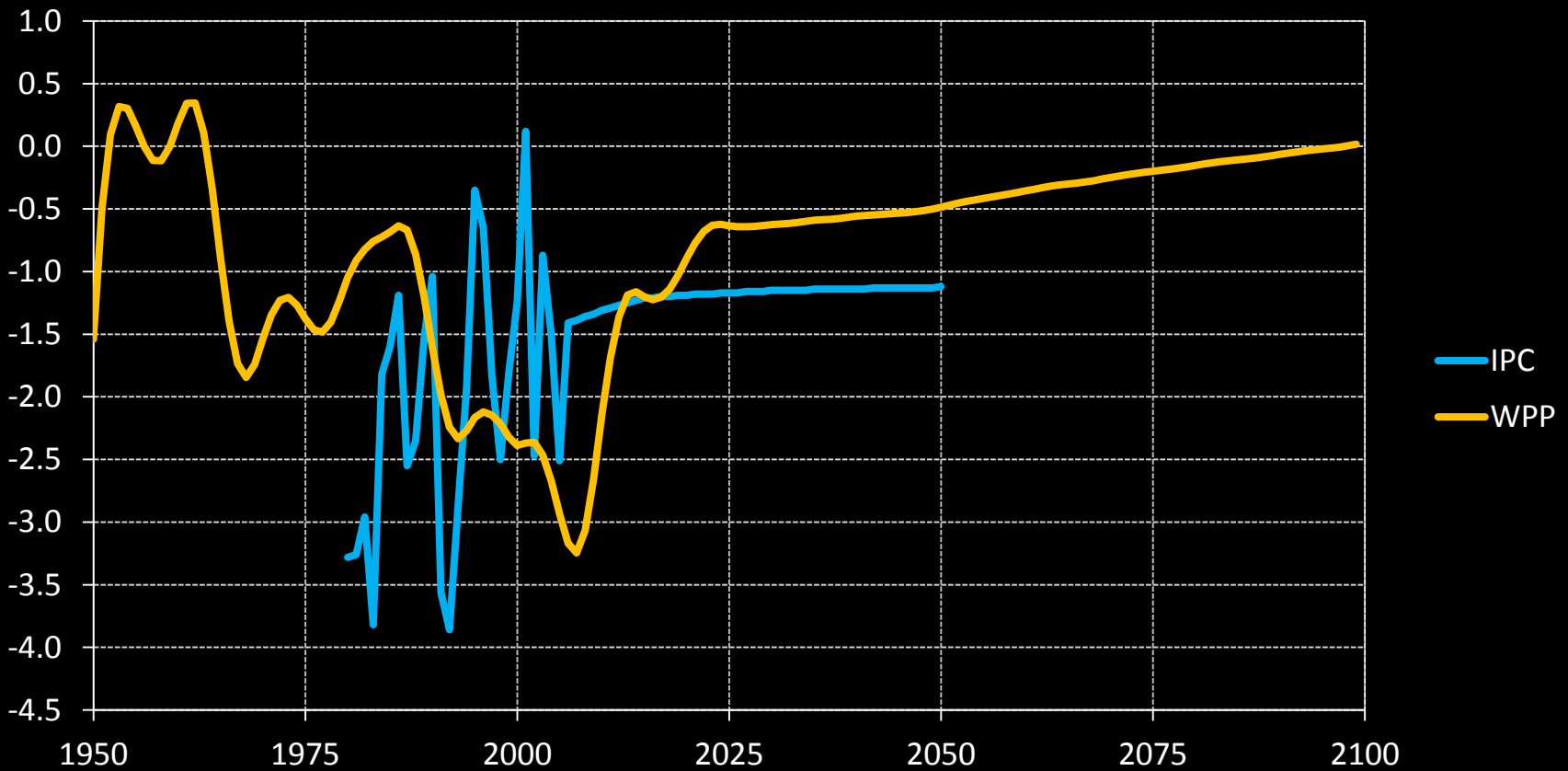**Crude Net Migration Rates: Estimates and projections, Kenya**

Legend: IPC, WPP, Series3

Comparing estimates and projections

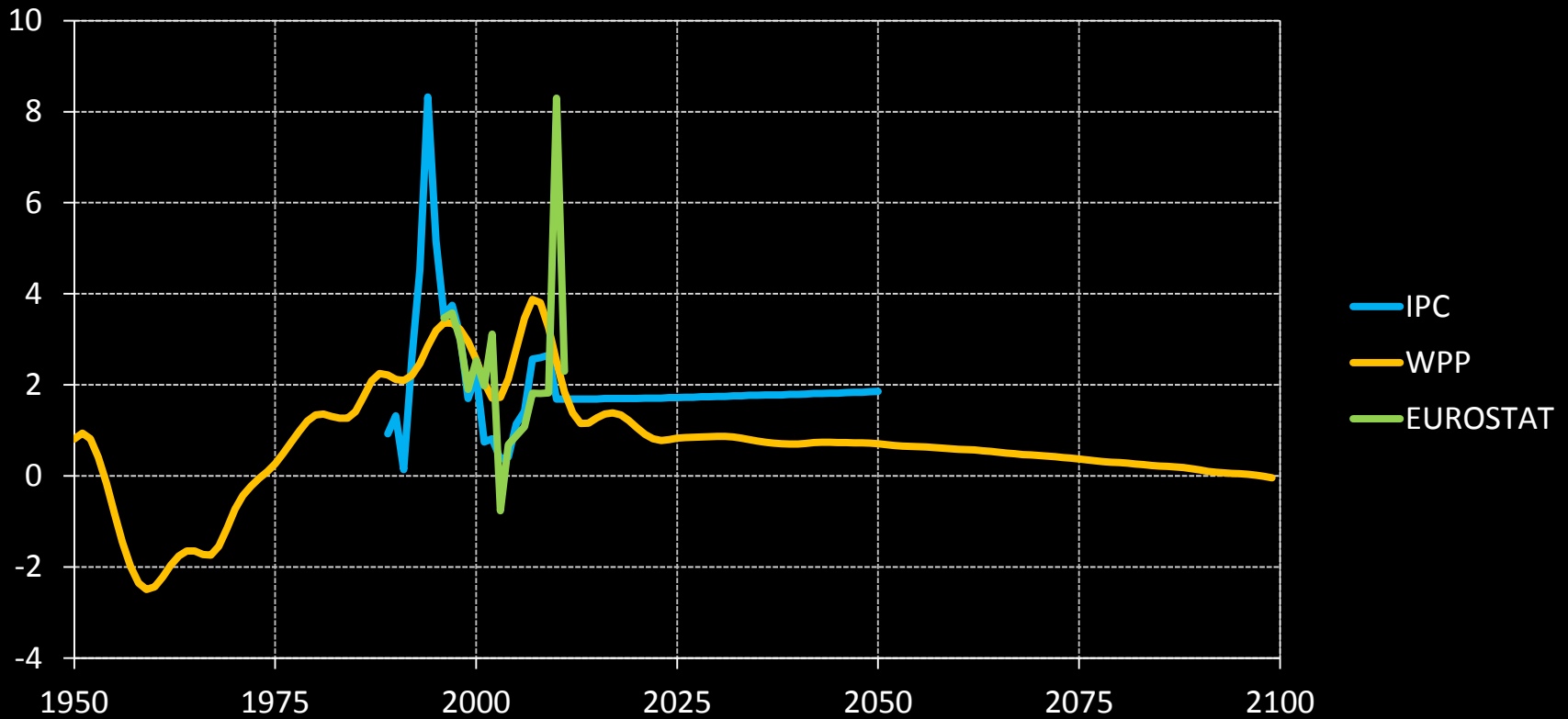**Crude Net Migration Rates: Estimates and projections, New Zealand**

Comparing estimates and projections

Crude Net Migration Rates: Estimates and projections, Philippines
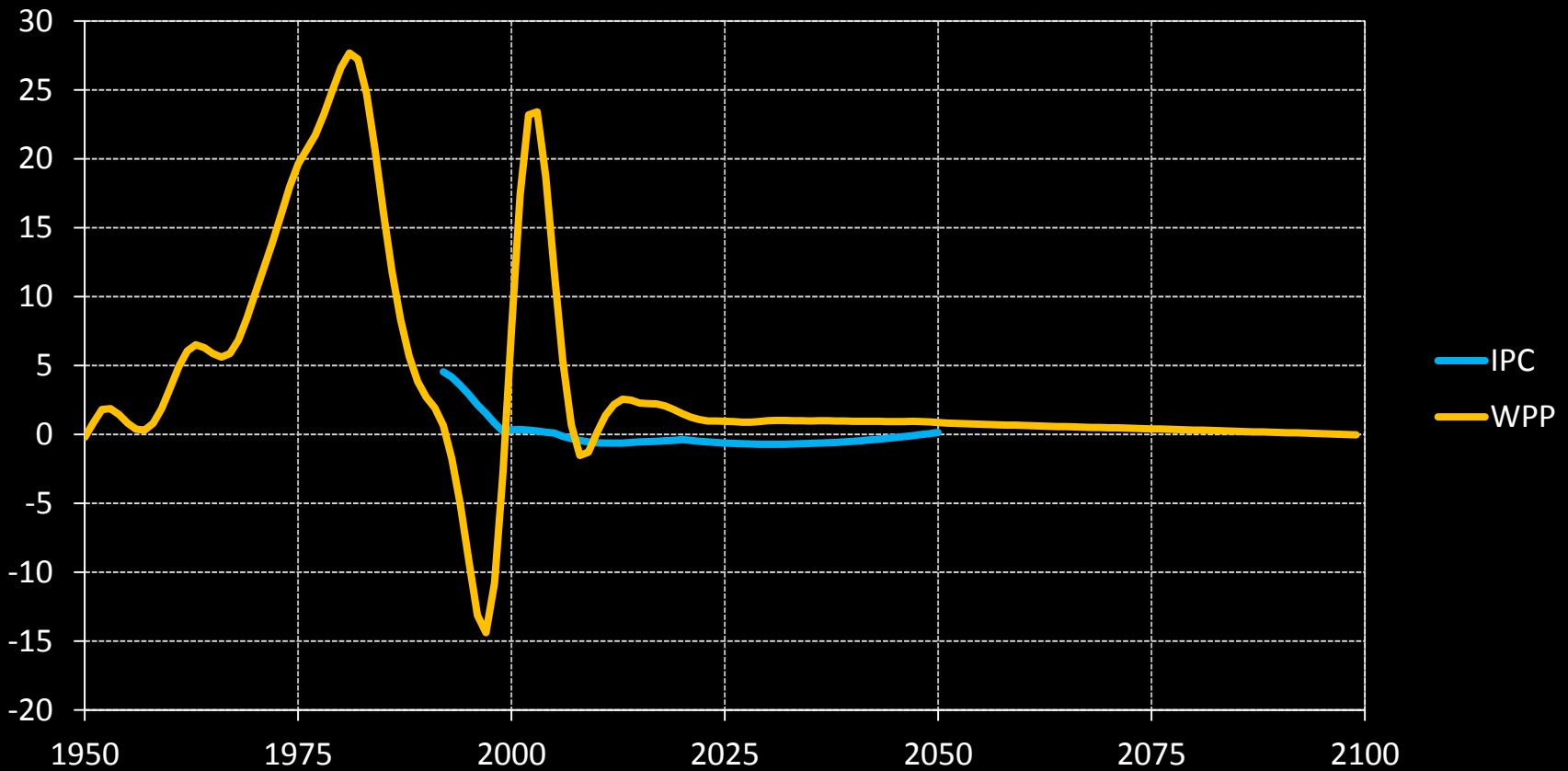
Comparing estimates and projections

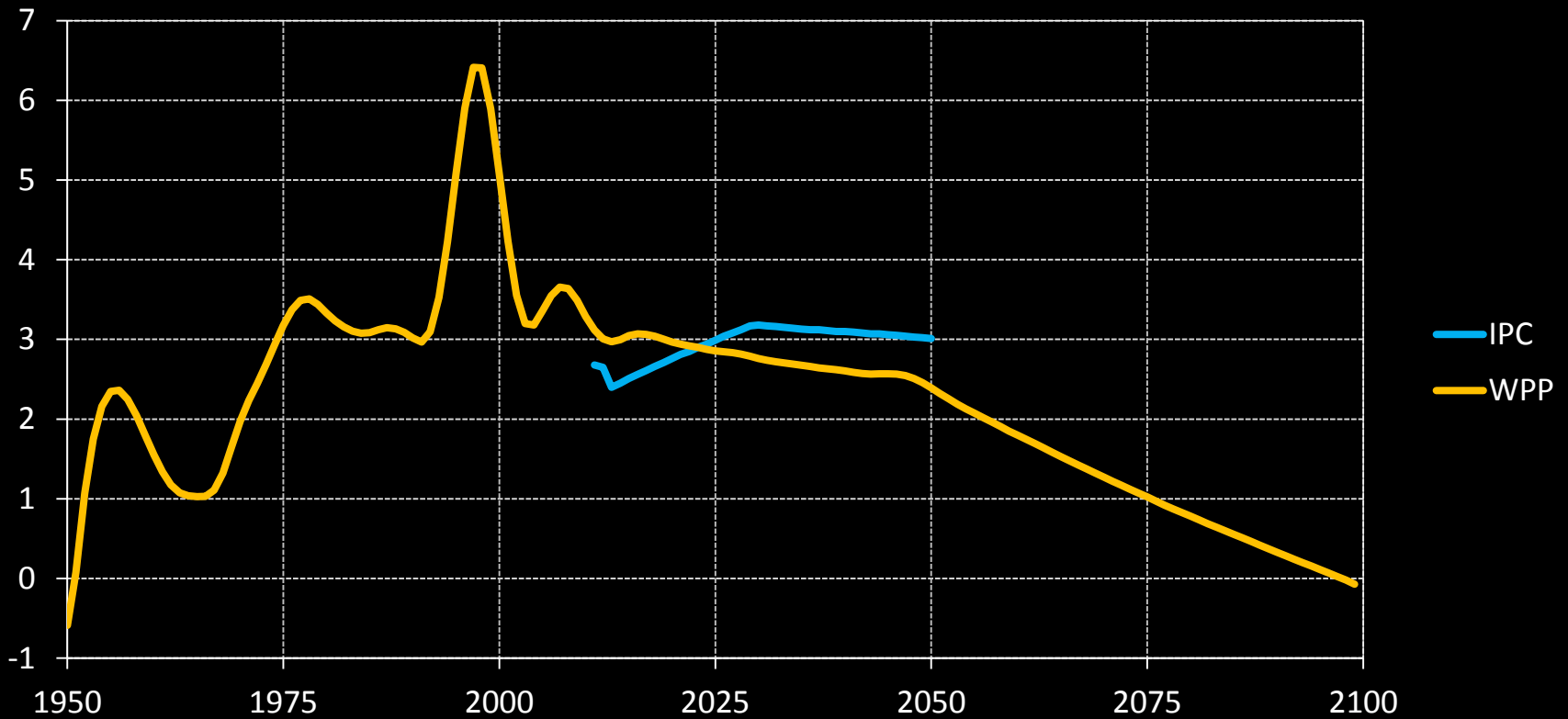Crude Net Migration Rates: Estimates and projections, Russian Federation

Comparing estimates and projections

Crude Net Migration Rates: Estimates and projections, Saudi Arabia

Comparing estimates and projections

Crude Net Migration Rates: Estimates and projections, United States of America
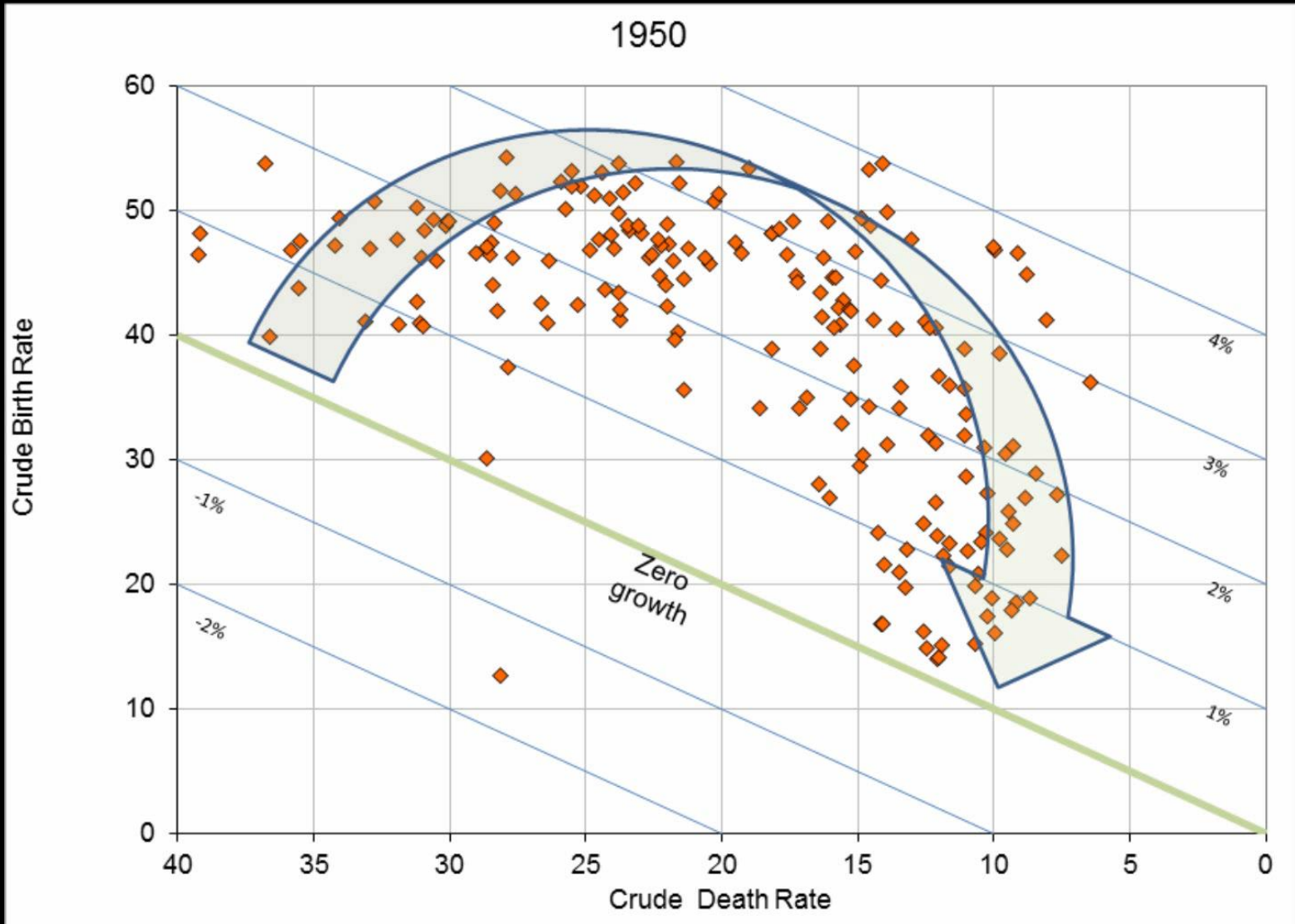
Discussion

- One of the most controversial and sensitive events affecting population change is statistically the least available (in terms of completeness, continuity and specificity).

- With the data on migration sparse, incomplete or ill-defined, and the actual trends often erratic, it seems impossible to generate suitable forecasting models for the dominant trends.

- The other demographic components are so much better behaved!

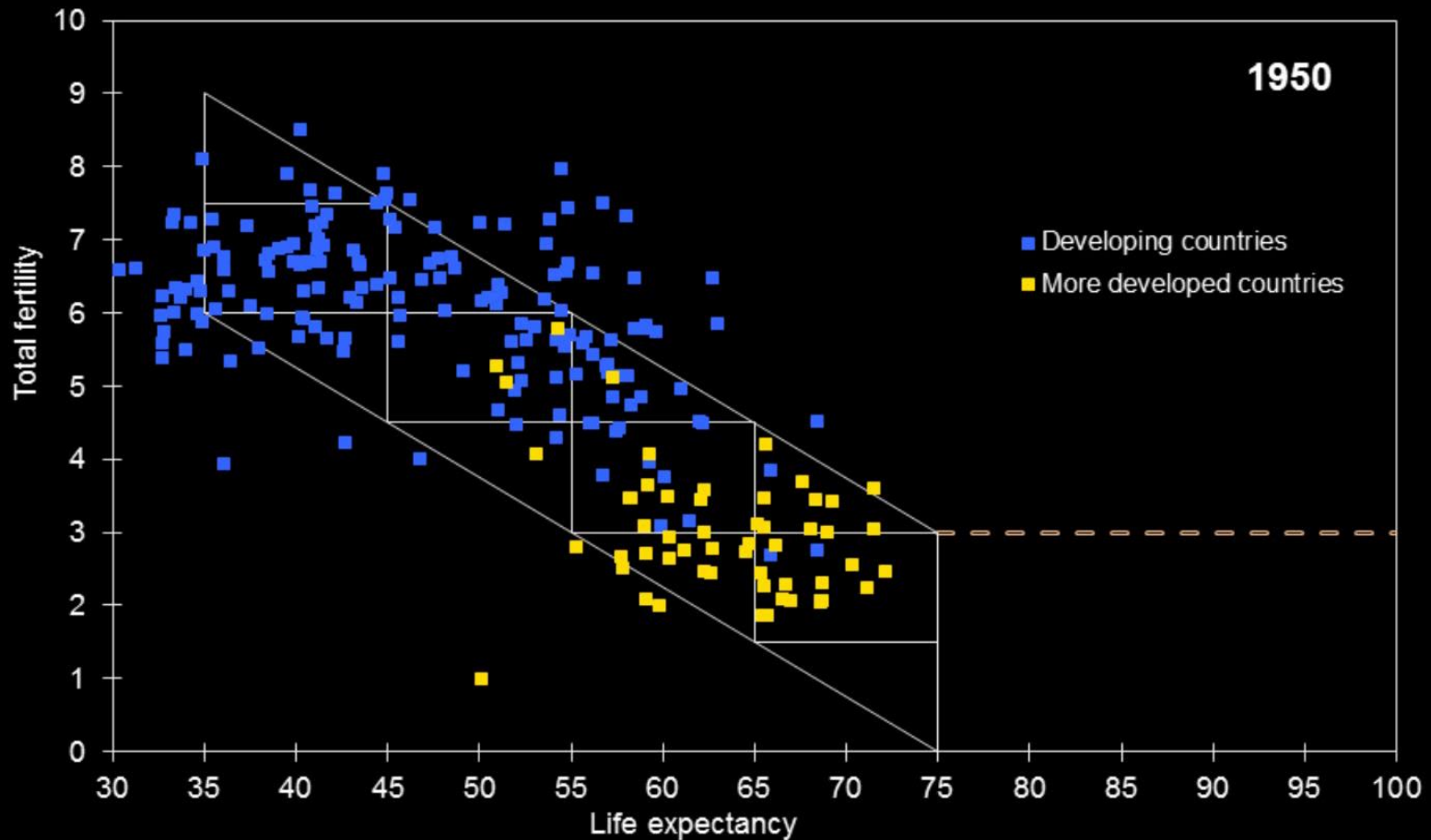# From high to low fertility and mortality
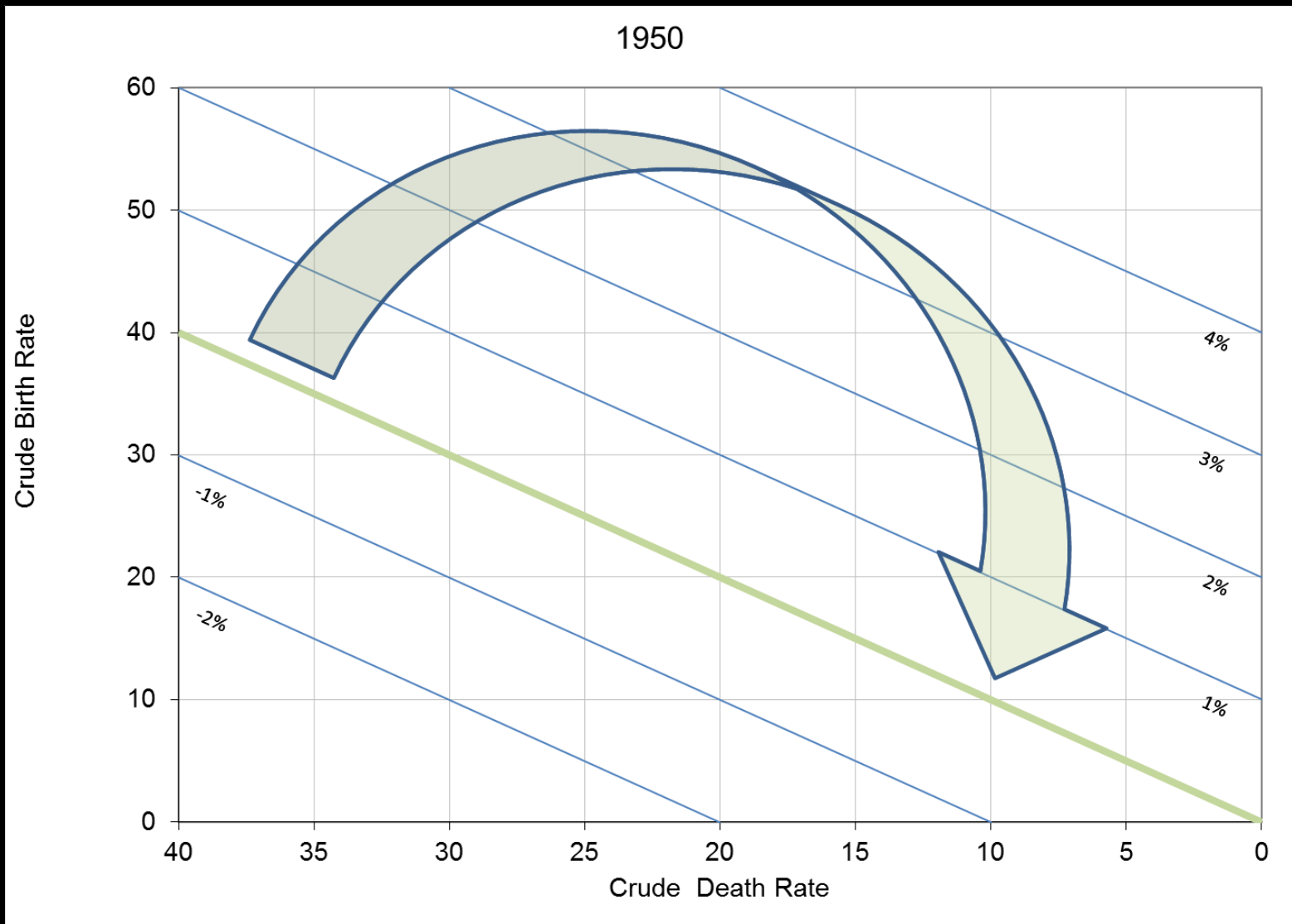
Demographic Transition: all together now!

The average person's travel through the demographic transition

Countries by position in demographic transition

Discussion (cont.)

- Both US/IPC and UN/WPP consider different types of movements in preparing assumptions for future migration:
  - Long-term or permanent migration
  - Labor or circular migration
  - Refugee movements
- Several countries assume no international migration for their population projections: India, Pakistan, Nepal, Viet Nam, forexample.

Discussion (cont.)

- If all countries are (potentially) involved, demographers feel the urge to balance migration at the world level:

    - The UN did this first for the projection period only, then moved slowly backwards to balance the past as well.

    - The US Census Bureau/IPC does not explicitly balance the world's migration, due the peculiarities of their production cycles.
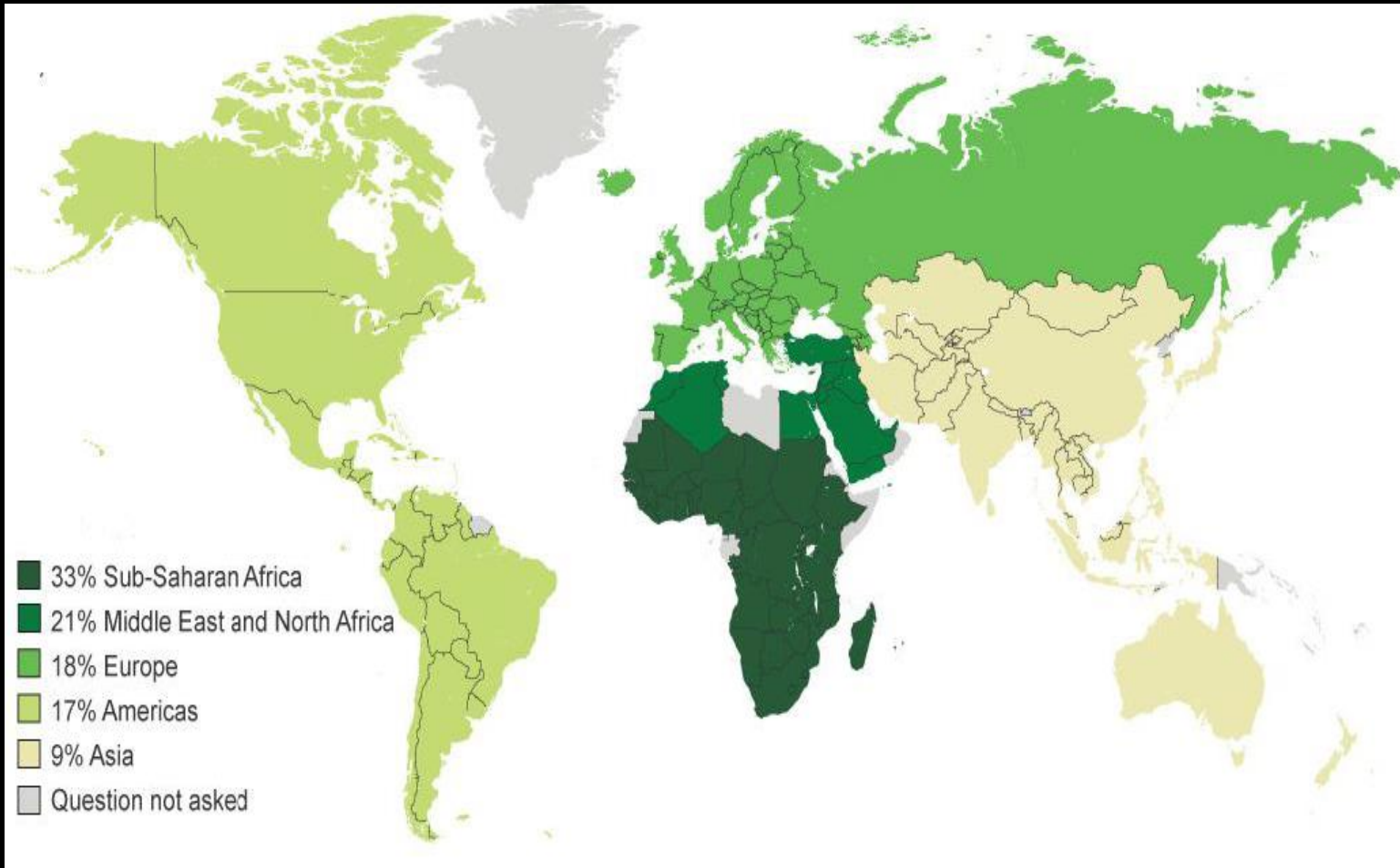
Discussion (cont.)

- Use of a scenario approach to capture possible and plausible future migration trends: telling stories.

- Use of conventional and non-conventional data for preparing migration assumptions/scenarios

- Use covariates?

- Use migration intentions?

Migration:
Intentions to move

- About 630 Million adults globally (14% of world population) want to leave their country to permanently settle in another country*.

- One third lives inAfrica

*Without labor migration

Potential migrants: countries of origin

33% Sub-Saharan Africa
21% Middle East and North Africa
18% Europe
17% Americas
9% Asia
Question not asked

Esipova and Rzepa (2011). The World's Potential Migrants. Gallup.

Potential migrants: countries of destination

- USA
- Canada
- UK
- France
- Spain
- Australia
- Germany

THANKS