A New Population and Development Research Agenda for the Post-2015 Era

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Sustainable Development Goals

The purpose of the SDGs is to identify and help to achieve a path of local-to-global development that ends extreme poverty, achieves convergent economic growth, promotes social inclusion, and ensures environmental sustainability in the coming generation and the 21st century.

Six Major Demographic Challenges:

Rapid population growth in Sub-Saharan Africa

Population *peaking* and *aging* in the high-income and many middle-income countries

Large-scale environmental disruptions

Rapid urbanization

Technology and large-scale labor market disruption

Dynamics and policies regarding migration

The Demographics of Sub-Saharan Africa

Sub-Saharan Africa Will Likely Be the Only Region With A Major Increase of Population in the 21st Century

| (Millions)	1950	2015	2050	2100
Developed	813	1,260	1,303	1,284
Africa (SSA)	179	949	2,074	3,815
Other Developing	1,534	5,116	6,174	5,755

UN POPULATION DIVISION MEDIUM-FERTILITY VARIANT

Major Research Questions:

(1) Explain Africa's persistently high fertility rates
(2) Describe the consequences of the lack of a timely demographic transition
(3) Describe the policy levers to achieve a more rapid voluntary reduction in TFR
(4) Assess the potential economic benefits and costs (if any) in promoting a faster demographic transition in SSA
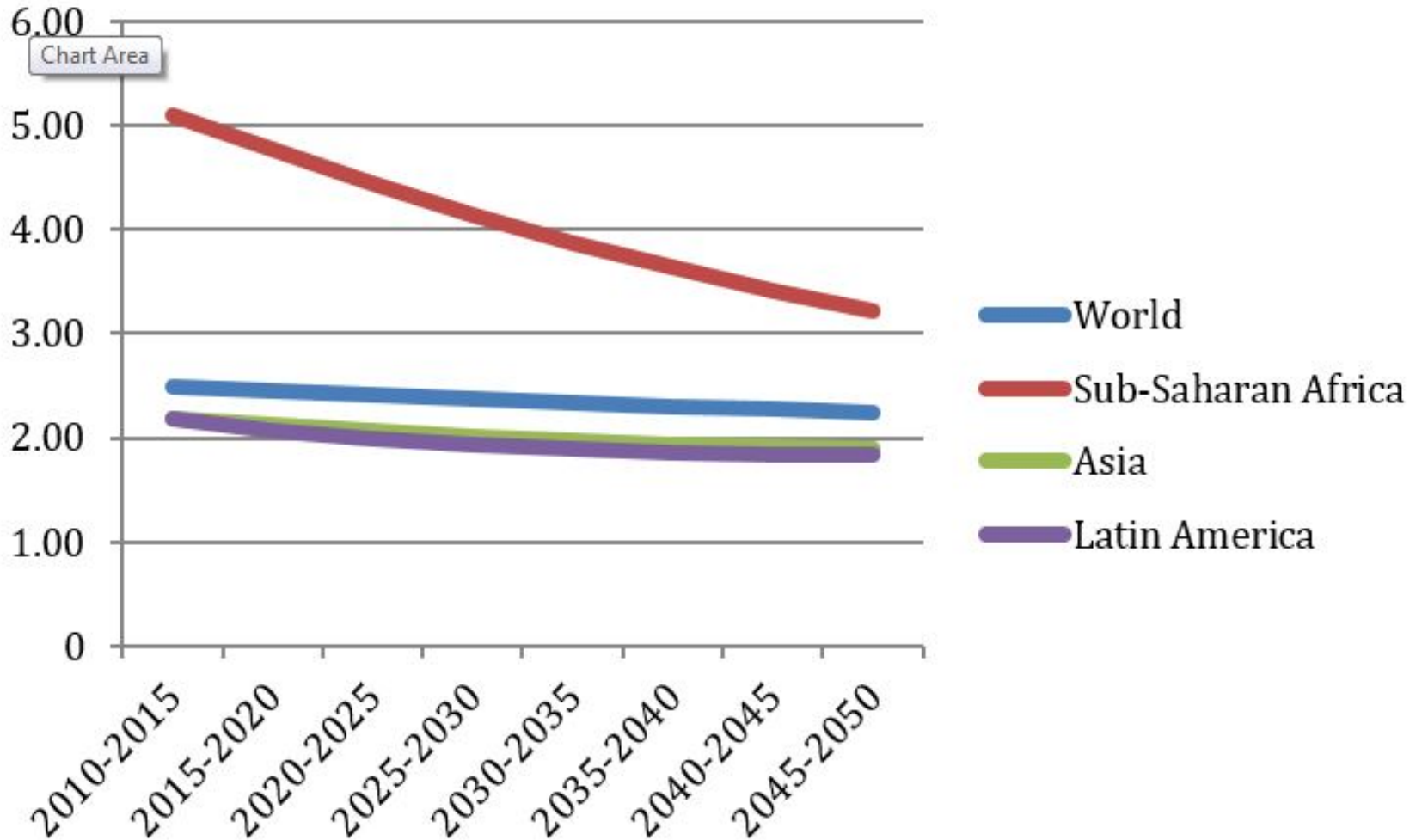
Total Fertility Rates by Region, 1950-2010
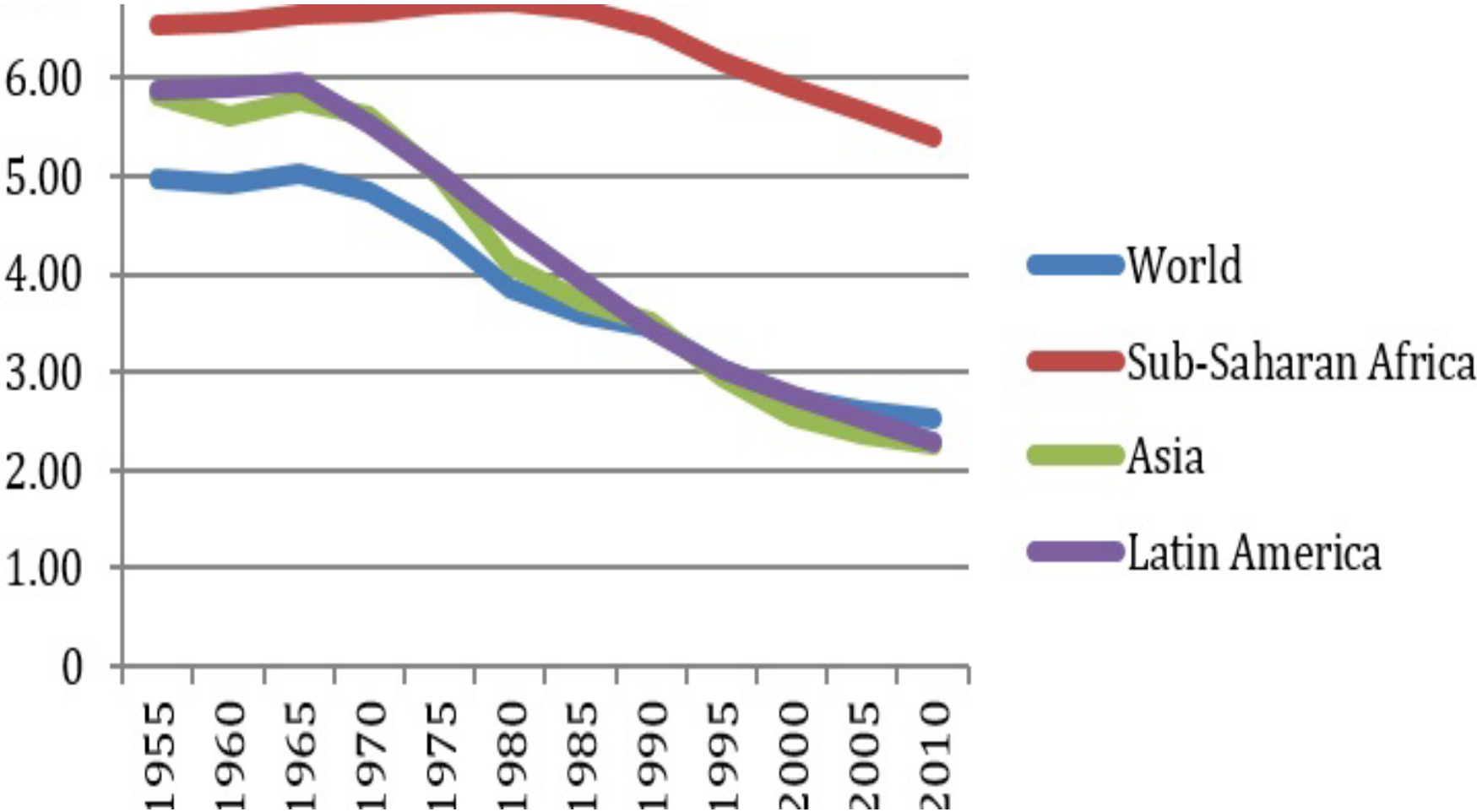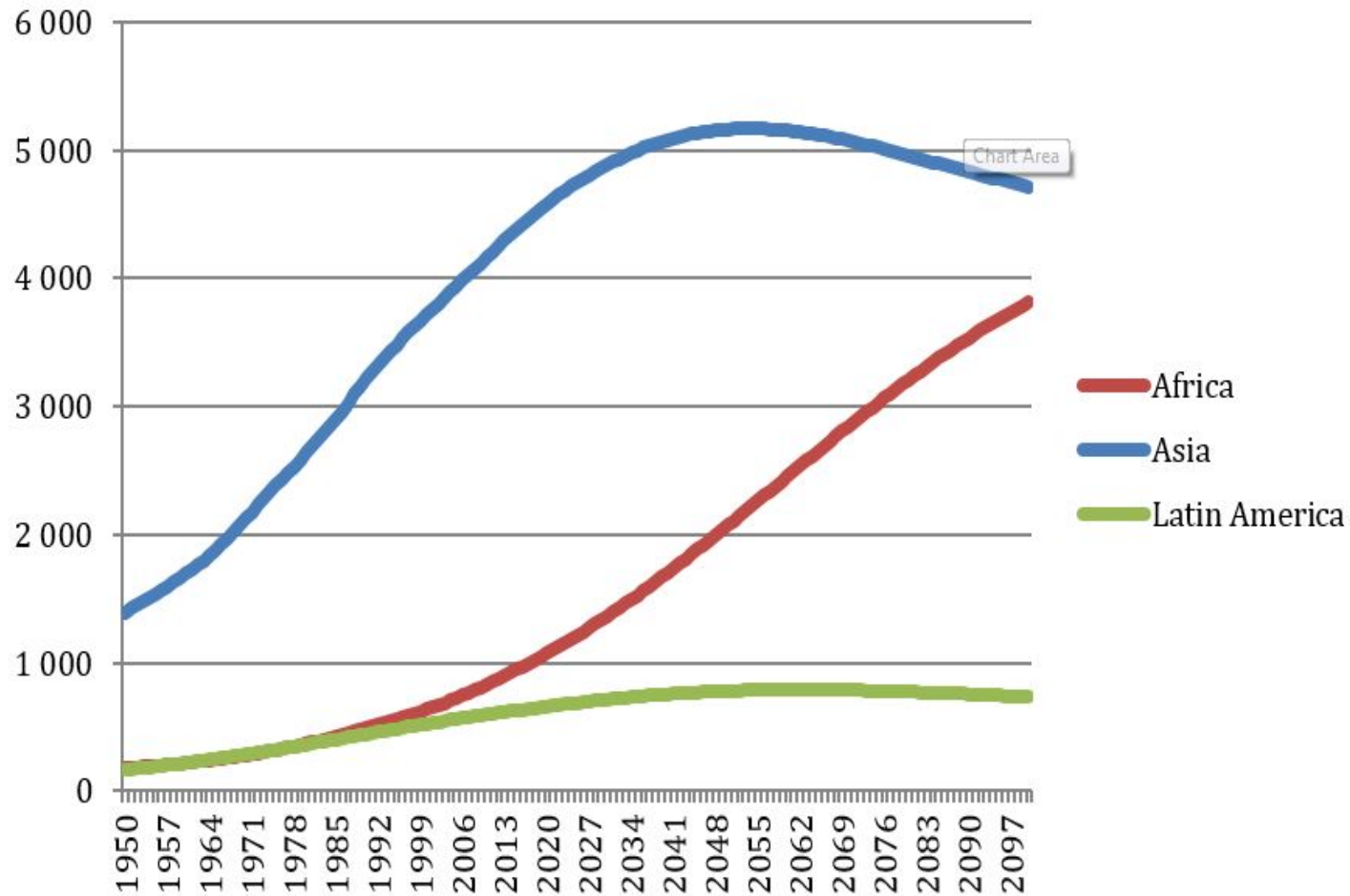
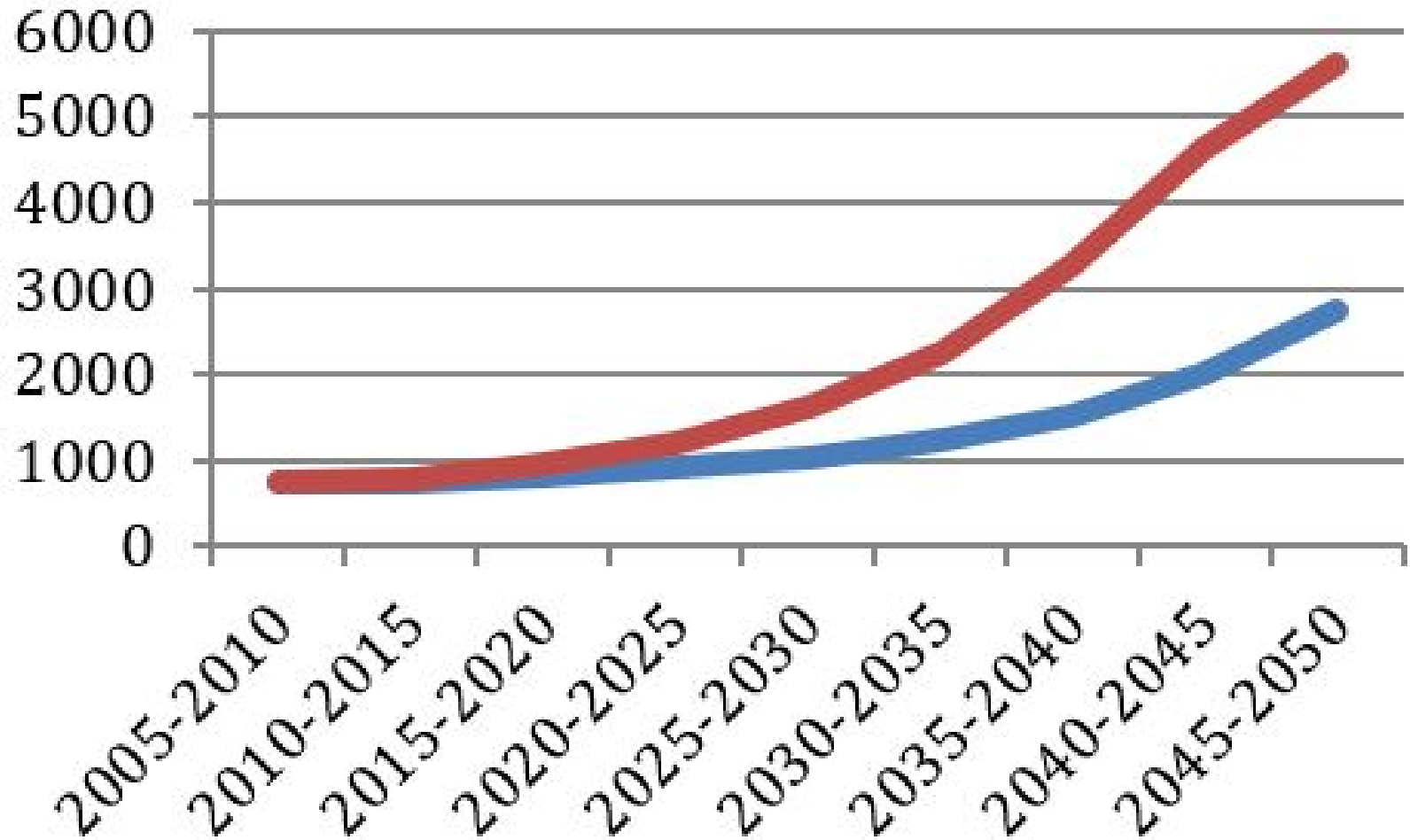# Under-5 Mortality Rates by Region, 1950-2010
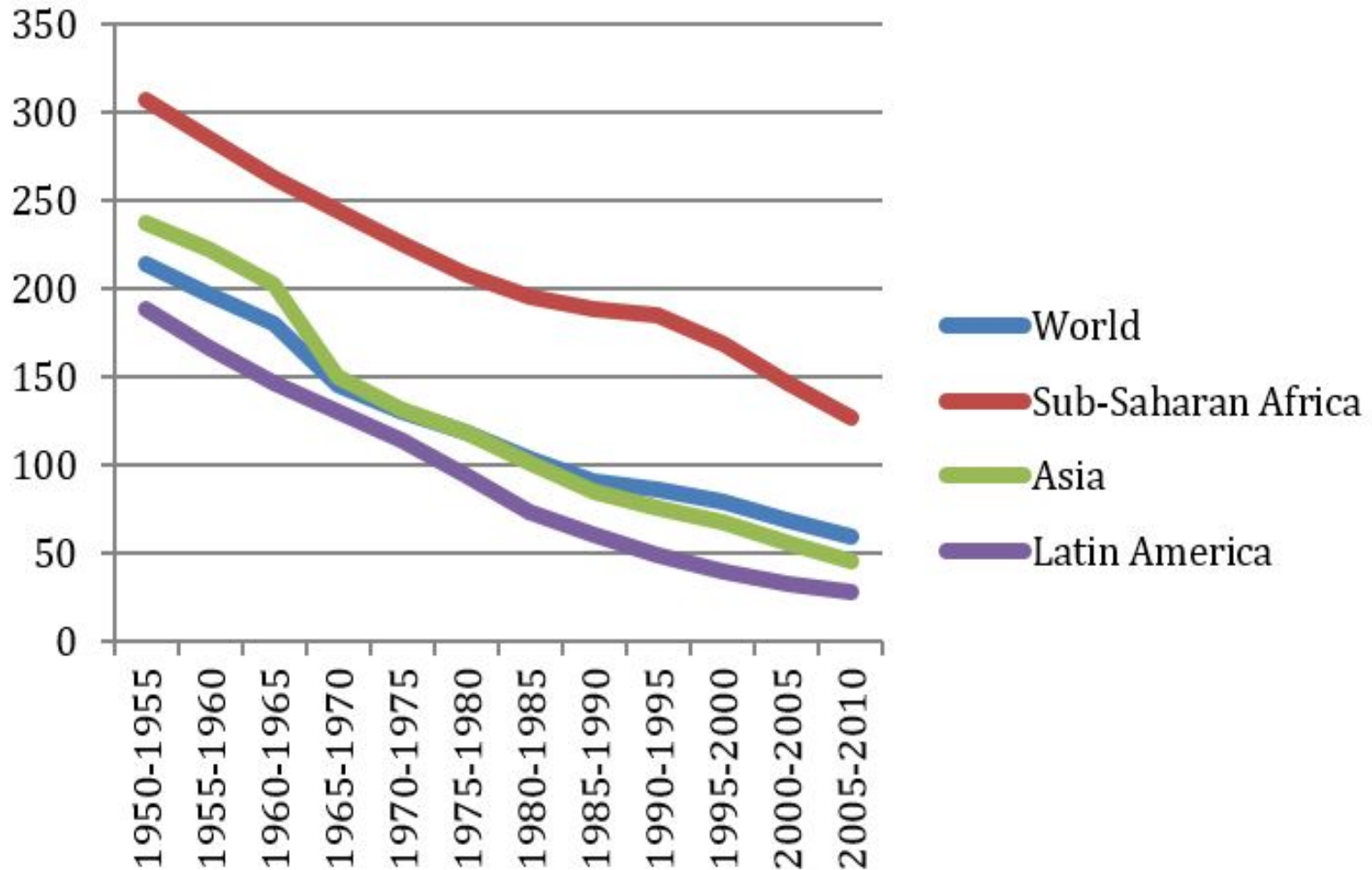
Total Fertility Rates By Region, Medium Scenario to 2050

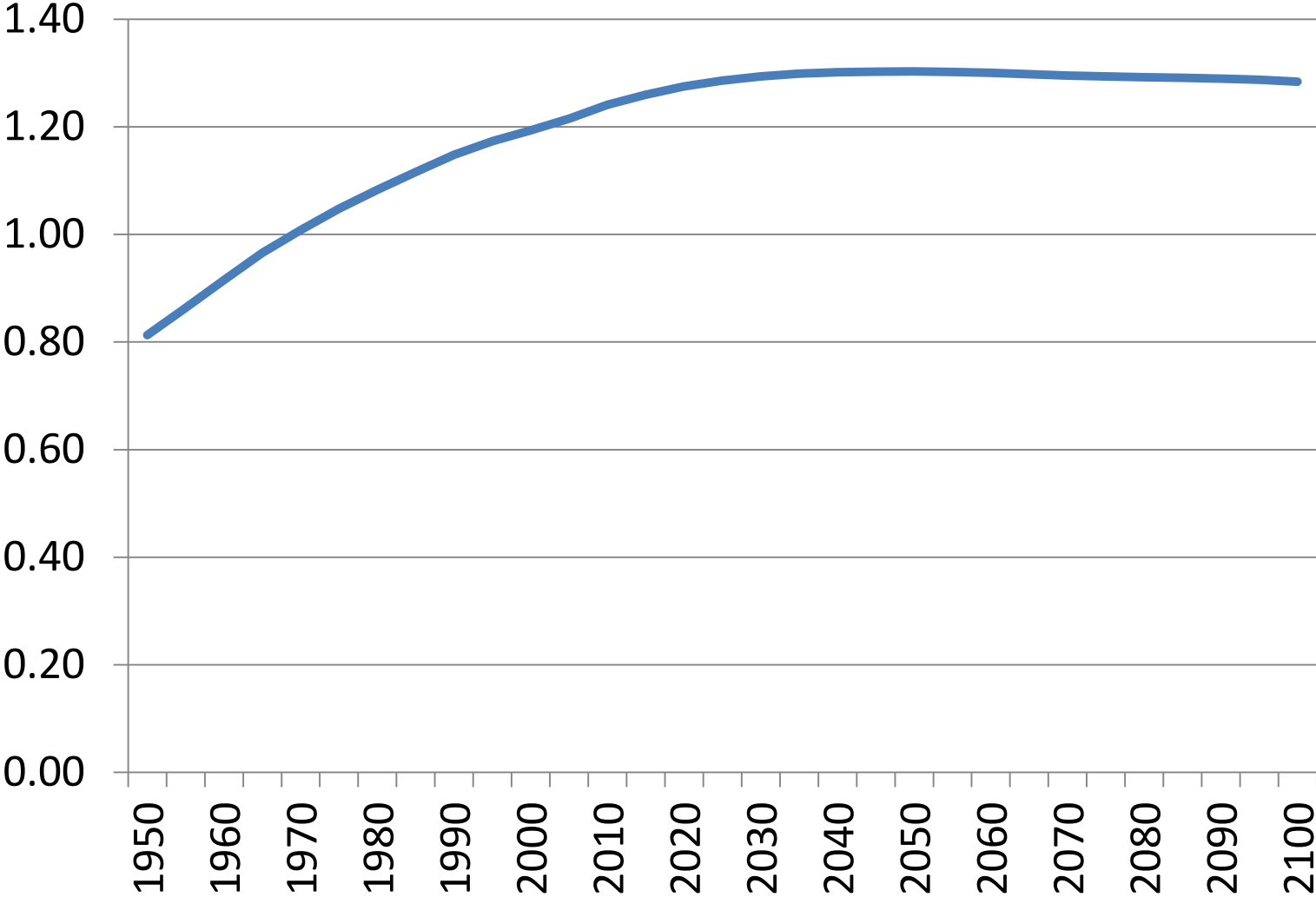# Population History and Projections: Medium Fertility Variant

GDP Per Capita in SSA With BAU and Rapid Demographic Transition
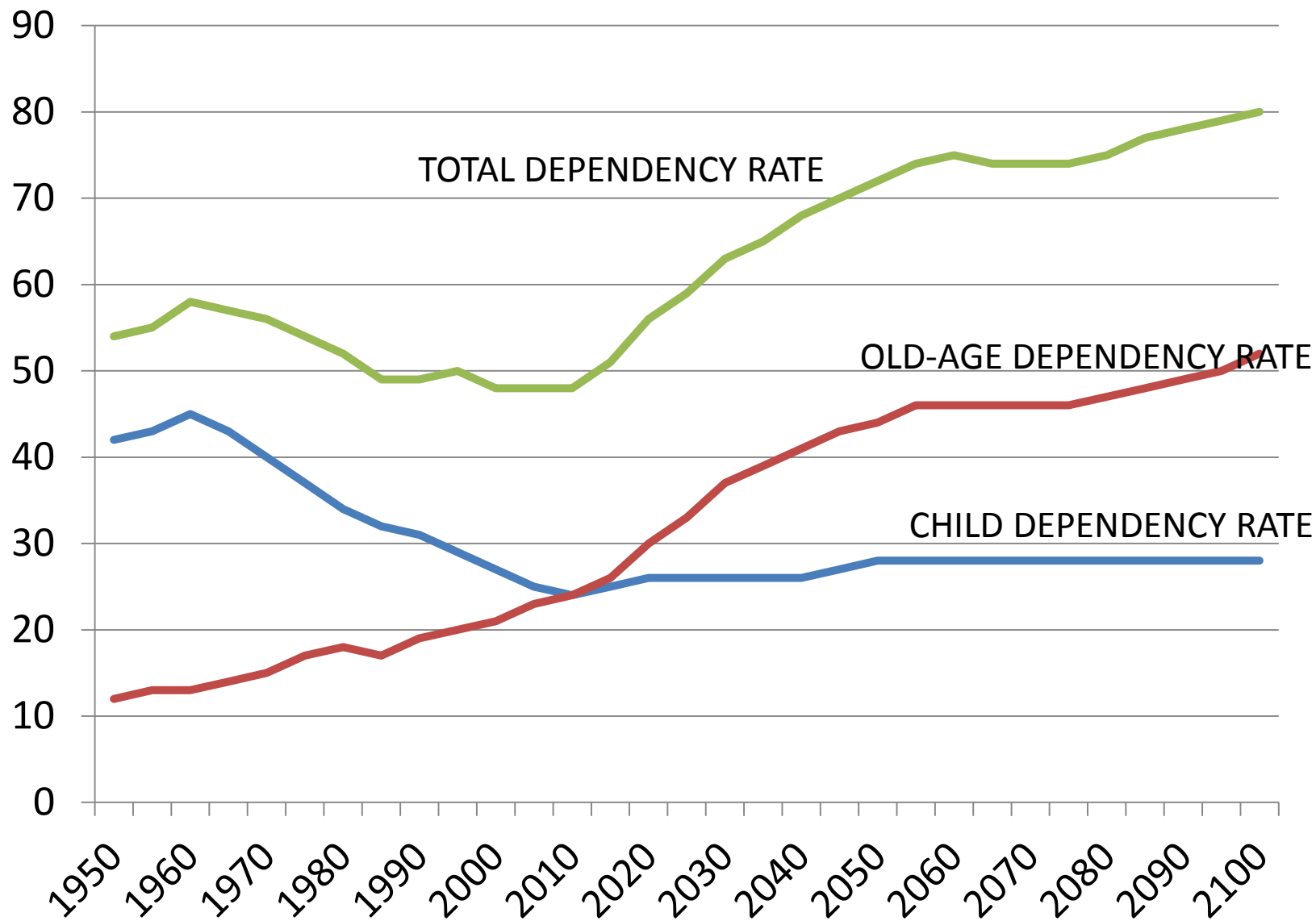
Population Peaking and Aging

Population of Development Regions (billions)

UN Population Division Median Variant

DEPENDENCY RATES OF THE DEVELOPED COUNTRIES

WORKERS PER RETIREE

US CENSUS BUREAU
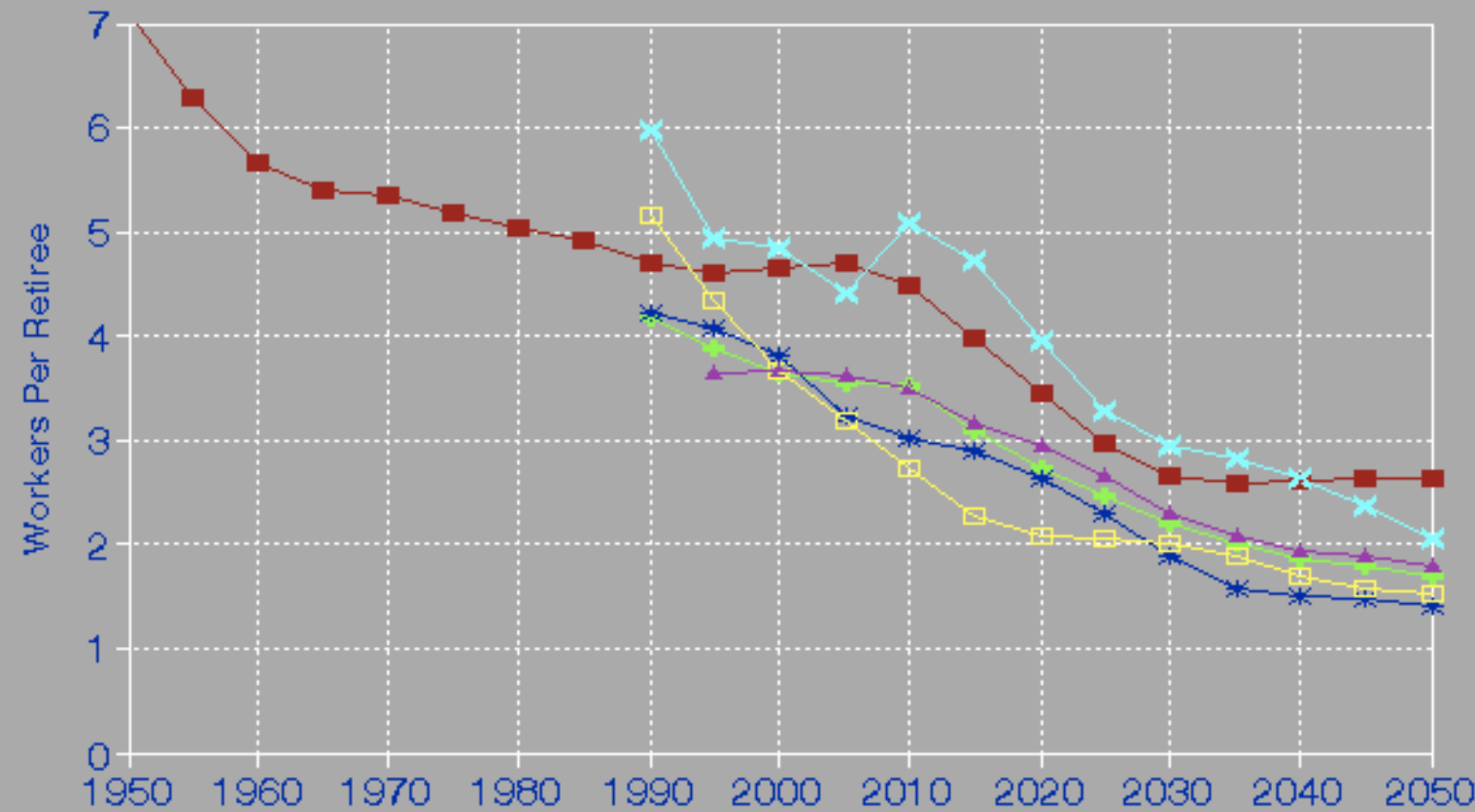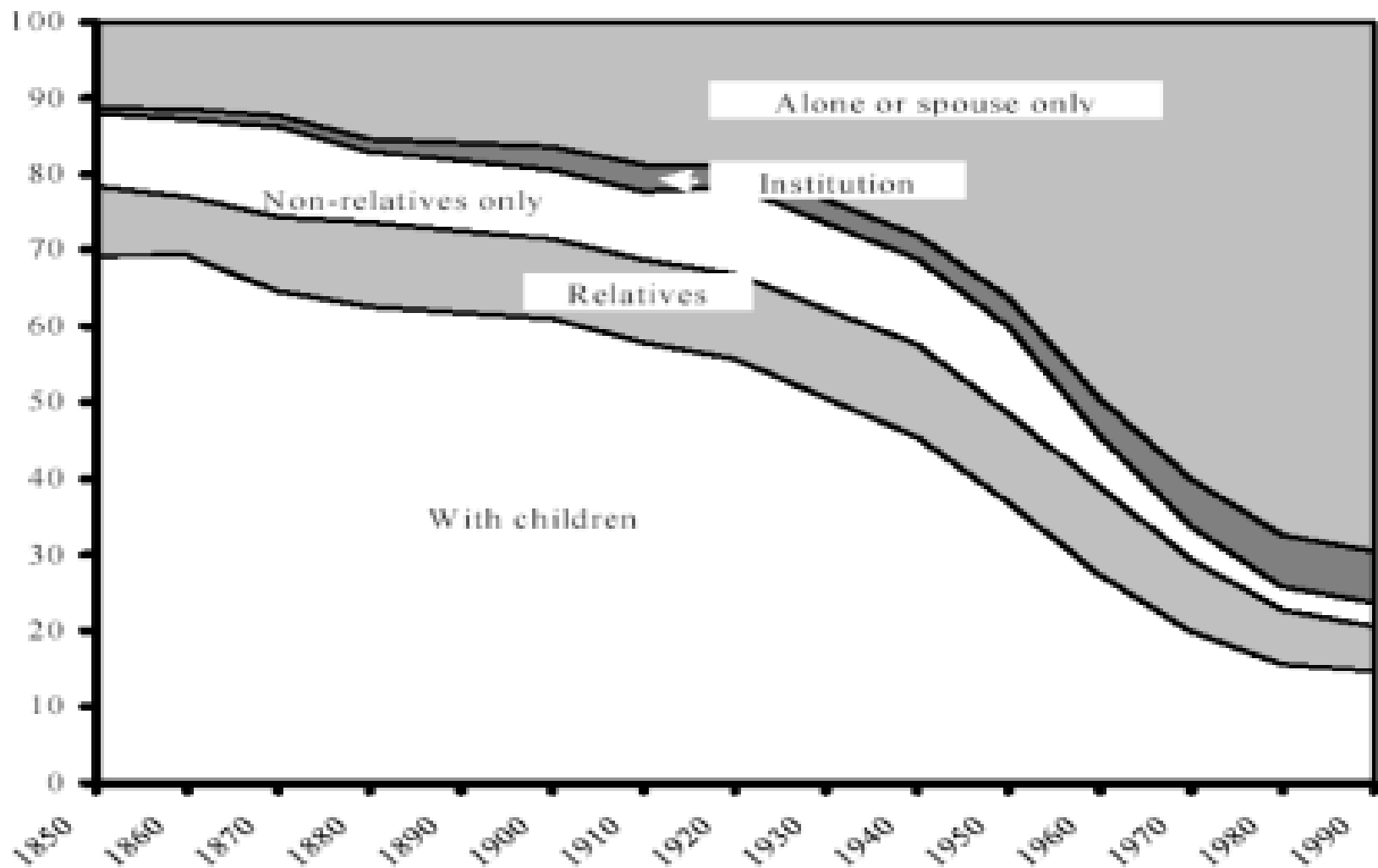
Living Arrangements of 65+   (Ruggles, 2001)

Some Research Questions on Peaking and Aging:

Fiscal implications of population peaking and aging (pensions, health care)

Inter-generational wellbeing (economic, social)

Family structure, social support networks, and household structure with peaking and aging

Work and retirement patterns of older population

Large-Scale Environmental Disruptions

Paleoclimate Guidance on Sea Levels (Hansen)

Eemian sea level +5-9 meters
   - Eemian temperature < +2°C*
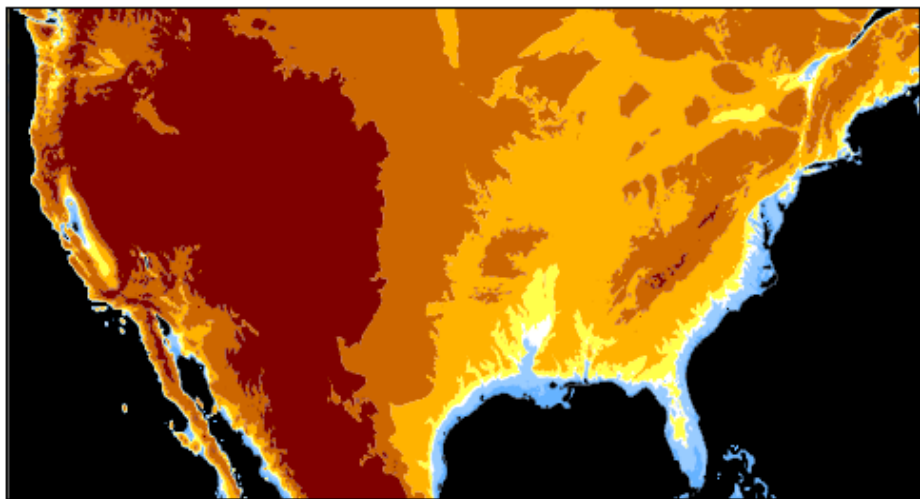

Pliocene sea level up to +15-25 meters
   - Pliocene temperature +3-4°C*

Ice sheet response time uncertain, but it is
   shorter than the lifetime of fossil fuel
   carbon and resulting global warming

*relative to pre-industrial times

U.S. Area Under Water

Europe Area Under Water
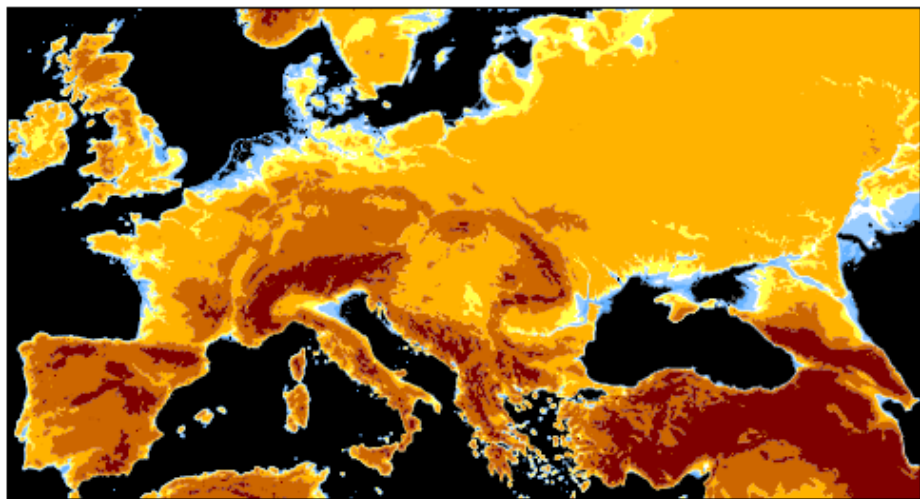
Central Asia: Area under Water
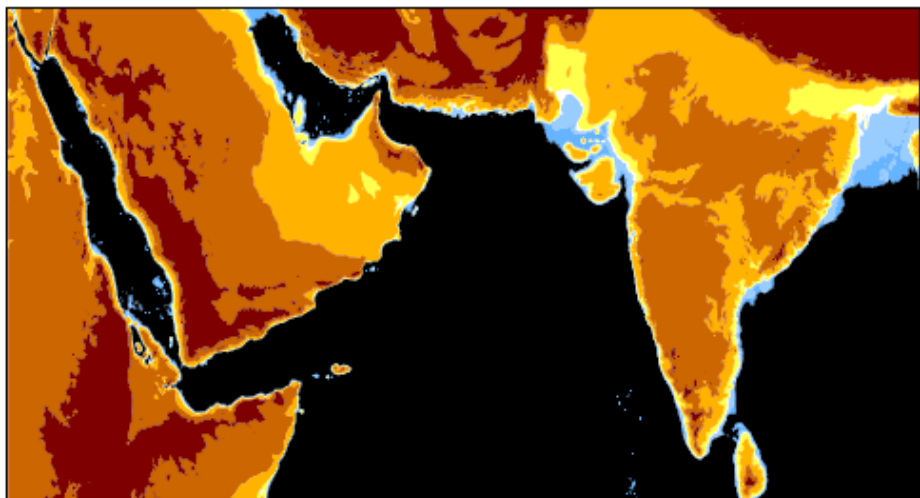
Far East: Area under Water
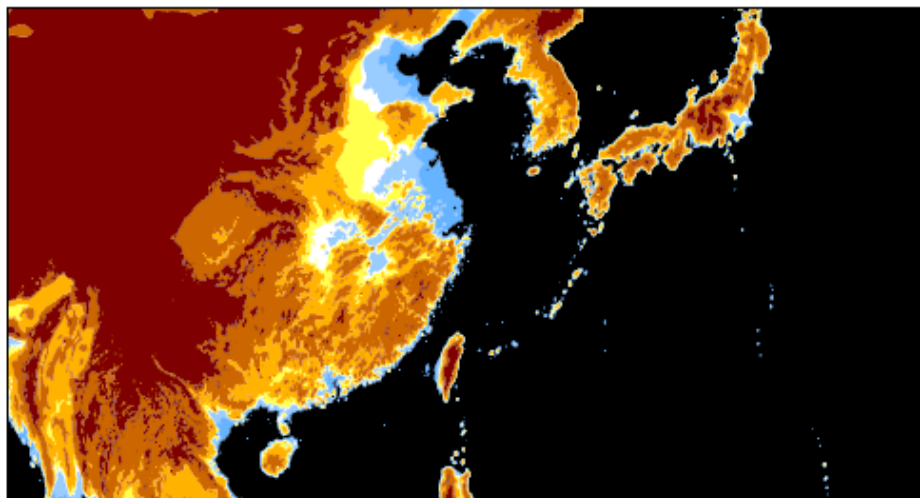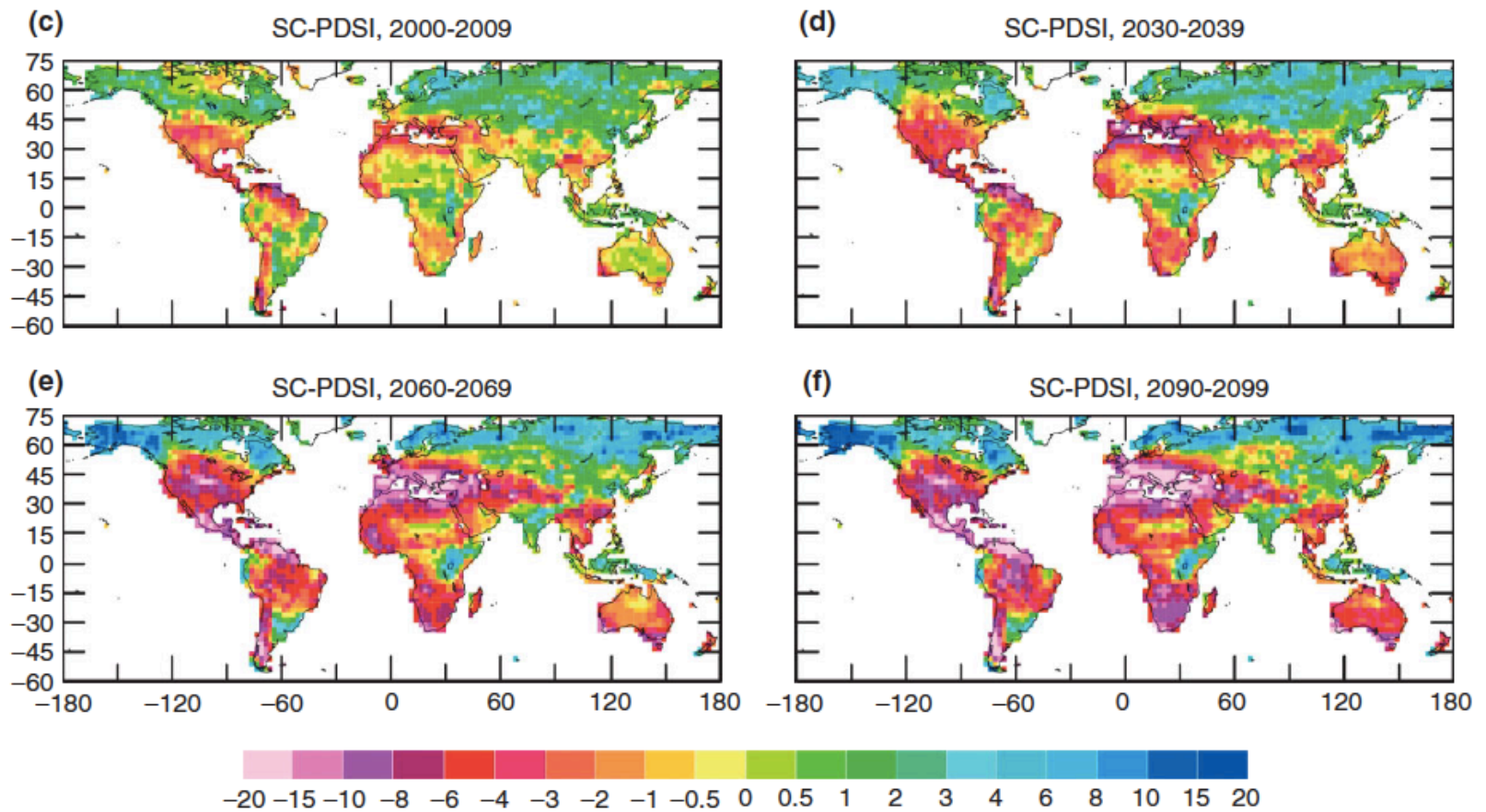
FIGURE 11 | Mean annual sc-PDSI_pm for years (a) 1950–1959, (b) 1975–1984, (c) 2000–2009, (d) 2030–2039, (e) 2060–2069, and (f) 2090–2099 calculated using the 22-model ensemble-mean surface air temperature, precipitation, humidity, net radiation, and wind speed used in the IPCC AR4 from the 20th century and SRES A1B 21st century simulations.[128] Red to pink areas are extremely dry (severe drought) conditions while blue colors indicate wet areas relative to the 1950–1979 mean.

PALMER DROUGHT SEVERITY INDEX

b) Impacts of Climate Change on Crop Production (2090s)

Legend:
- Decrease with high confidence
- Decrease with medium confidence
- Decrease with low confidence
- Increase/decrease mix
- Increase with low confidence
- Increase with medium confidence
- Increase with high confidence
- Country Boundary
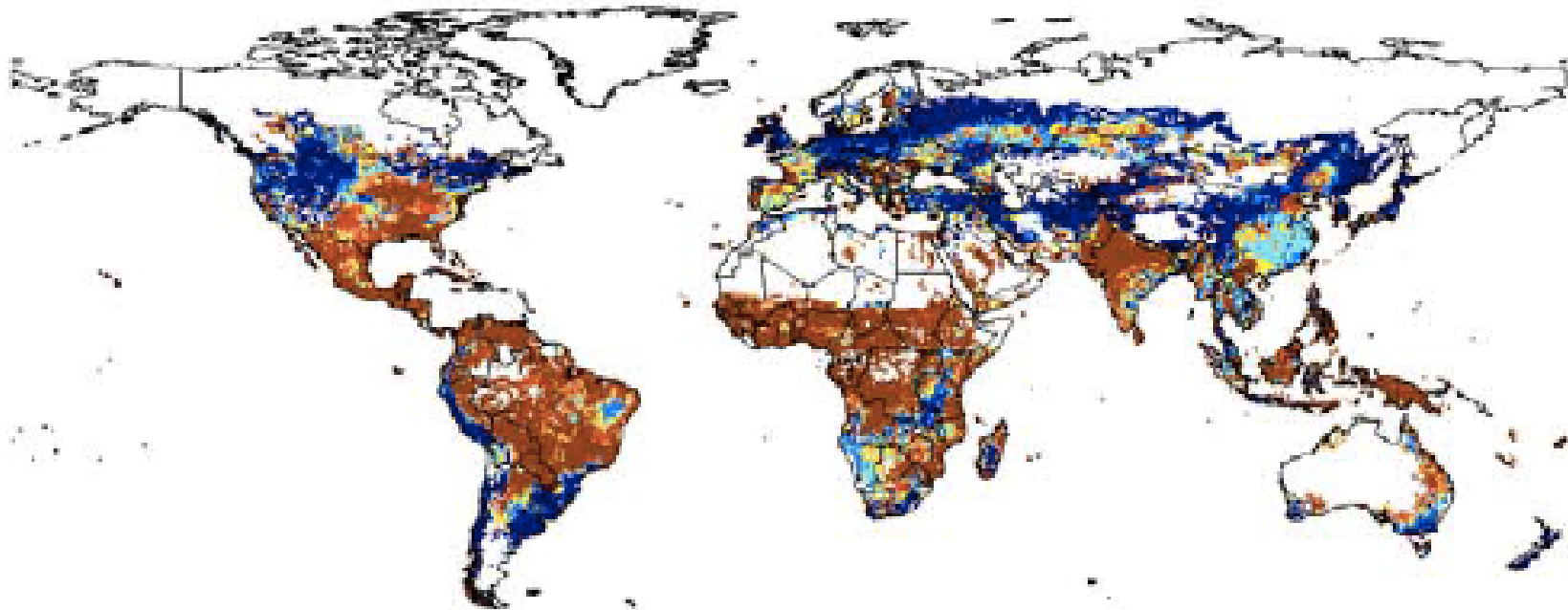
Potential Implications and Research Questions on Environment and Demography:

Major disruptions in living standards, health, and production by region

Frequency and Intensity of conflicts

Environmentally induced large-scale migration

Implications of Rapid Urbanization

Figure 3.

Urban and rural population as proportion of total population, by major areas, 1950–2050
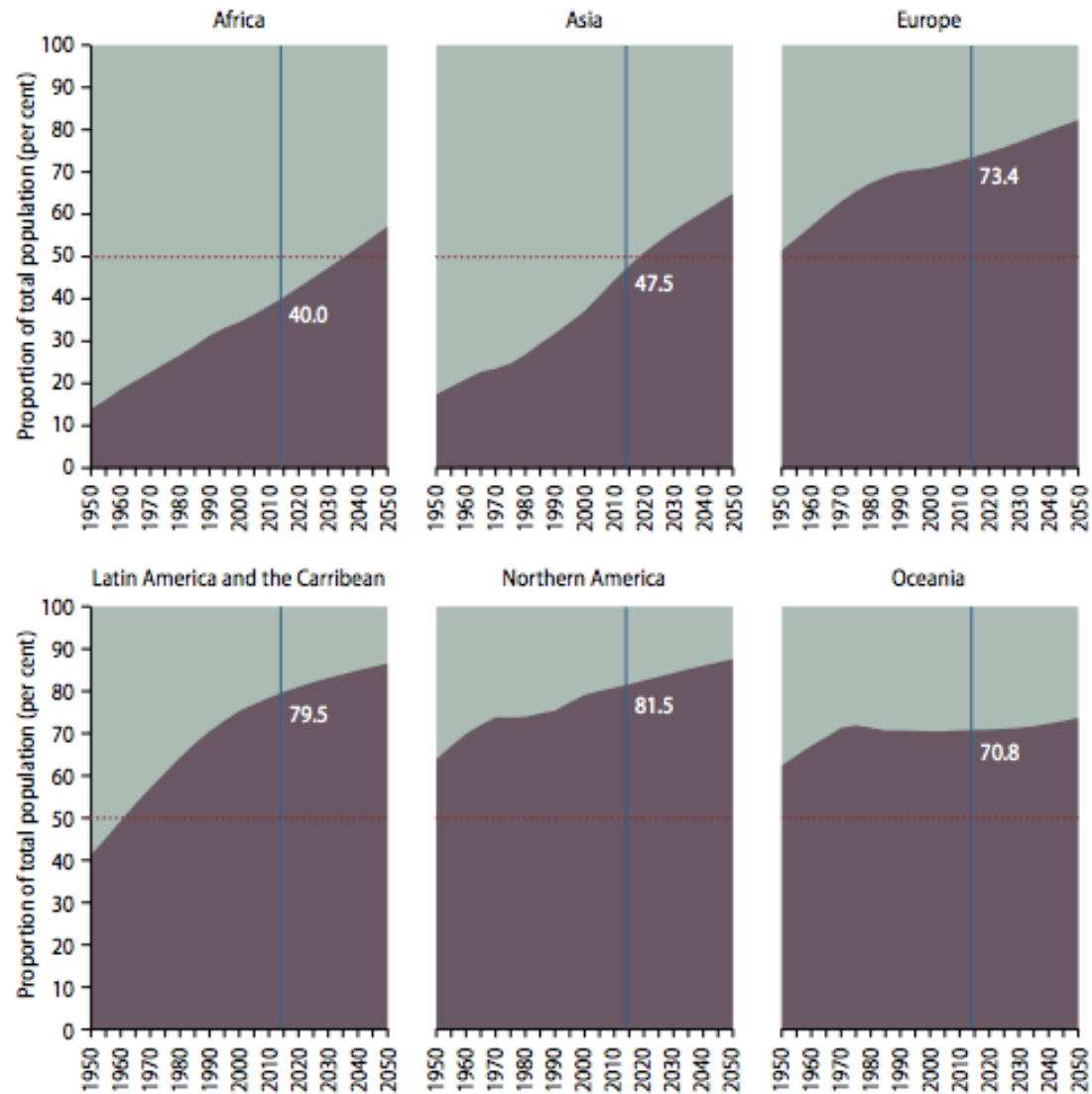
Urban planning and design for:

Economic productivity via "smart" infrastructure and plans (e.g. traffic flow, work-to-job flow, water, sewerage, power, telecoms)

Smart services (health, education, governance)

Environmental sustainability (e.g. climate mitigation, air and water pollution, disease control)

Resilience (sea level, storms, floods, droughts, heat waves)

Quality of life (mix-use streets, green areas, walking/biking)

Technology and Labor-Market Disruption

THE MACROECONOMICS OF ROBOTS

MEDIAN INCOME IN CONSTANT $2011 BY AGE GROUP, 1947-2011: NOTE THE STEEP DECLINE AMONG 25-34 YEAR-OLDS
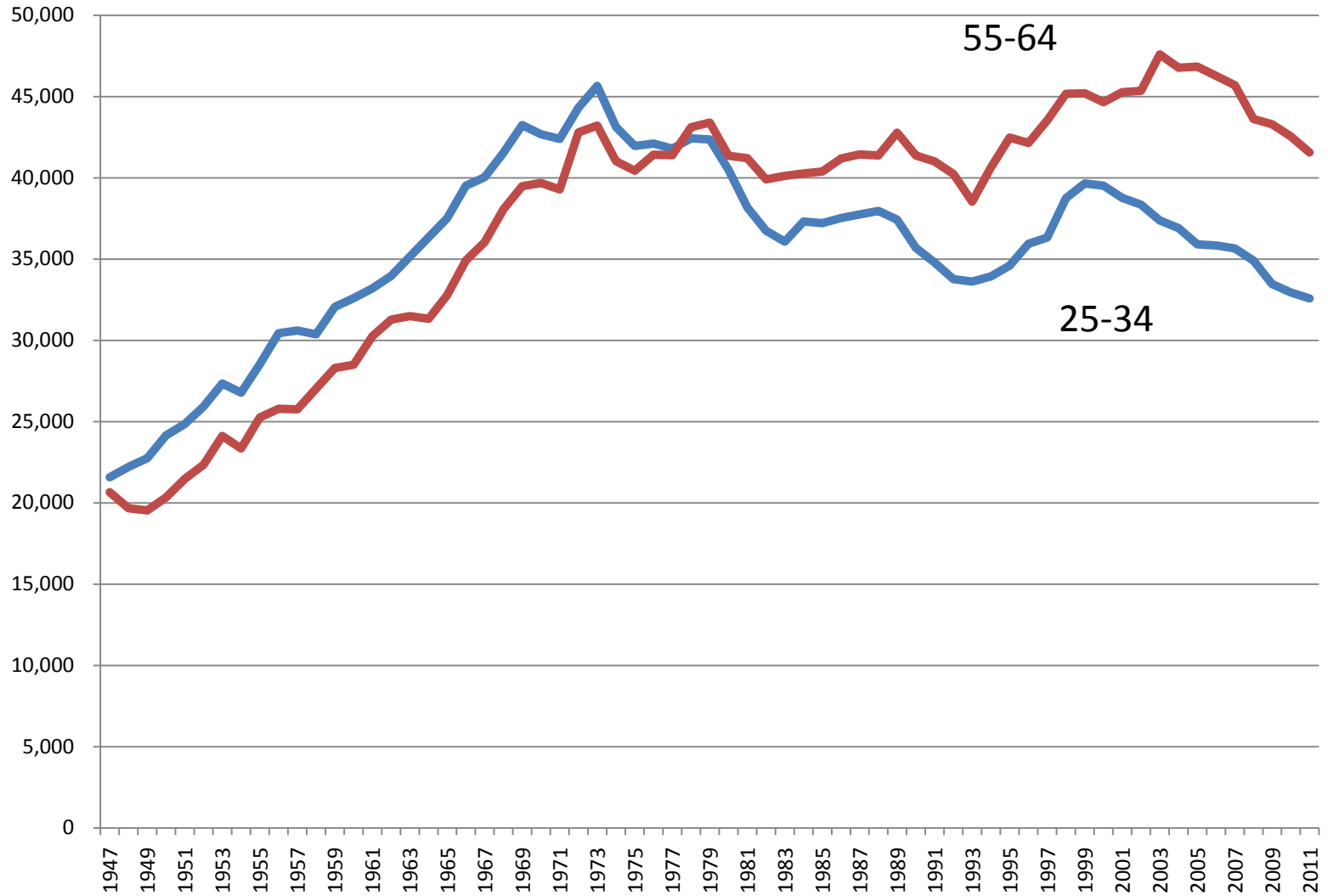
Research Questions on the Impacts of ICTs and AI on

Future of work and leisure

Income distribution (functional and household)

Inter-generational wellbeing

Returns to education and skills

Saving and investment

Dynamics and Policies on Global Migration

OCÉAN
PACIFIQUE

OCÉAN
ATLANTIQUE

OCÉAN
PACIFIQUE

OCÉAN INDIEN

Amérique
du
Nord

CEI*

Europe
occidentale

PECO*

Balkans
Turquie

Japon

Asie
orientale

Pays
du Golfe

Mexique

Caraïbes

Afrique

Asie
du Sud

Asie du Sud-Est

Amérique
du Sud

Australie

Flux légaux (1990-2000) et carrefours majeurs

de 1 à 3,5 millions

de 500 000 à 1 million

de 300 à 500 000

Flux régionaux

Pôles-carrefours majeurs
des migrations mondiales

Espaces à fortes dynamiques migratoires

Corridors migratoires importants

Zones de tension migratoire

Pôles de départ importants (2005)

11 à 20 millions d'émigrants

5,5 à 10 millions d'émigrants

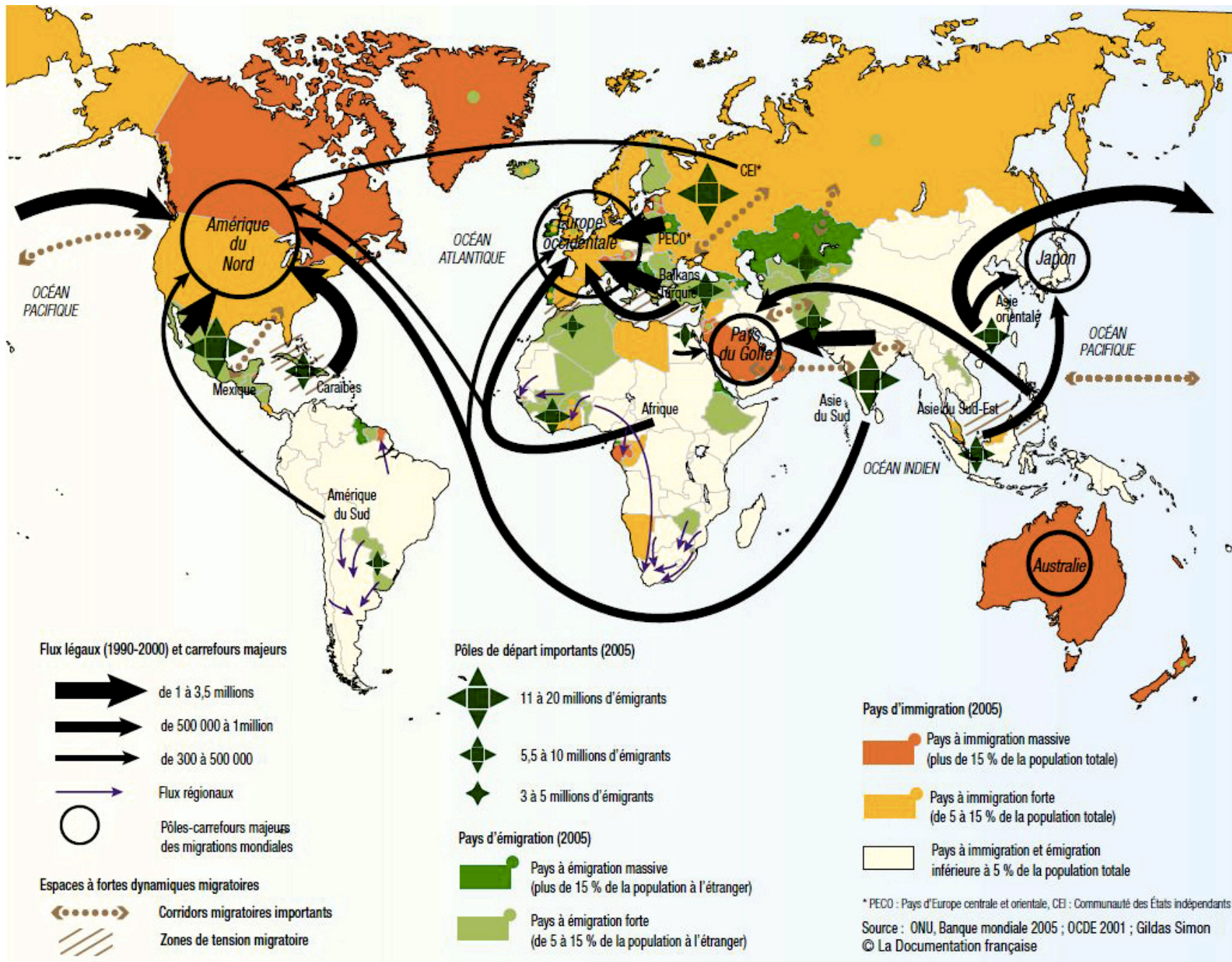3 à 5 millions d'émigrants

Pays d'émigration (2005)

Pays à émigration massive
(plus de 15 % de la population à l'étranger)

Pays à émigration forte
(de 5 à 15 % de la population à l'étranger)

Pays d'immigration (2005)

Pays à immigration massive
(plus de 15 % de la population totale)

Pays à immigration forte
(de 5 à 15 % de la population totale)

Pays à immigration et émigration
inférieure à 5 % de la population totale

* PECO : Pays d'Europe centrale et orientale, CEI : Communauté des États indépendants

Source : ONU, Banque mondiale 2005 ; OCDE 2001 ; Gildas Simon
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Some Research Questions on Migration:

Modeling point-to-point migration flows due to economic and demographic differentials, environmental disruption, and national and international policies

Implications for income generation, income distribution, and family structure

Implications for social dynamics and governance of changes in native-born, migrant population shares