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Comparing Estimates of Life Expectancy at Birth Produced by UN Population Division for 201 Countries and over Period 1950-2015 with External Data

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Disclaimer: The views expressed here do not imply the expression of any opinion on the part of the United Nations Secretariat

Abstract

In order to assess quality, empirical basis and uncertainty of estimates of life expectancy at birth (LEB) for all countries and areas in the world, we collected, organized, and documented all available external data on life expectancy at birth. In this report we present trends in life expectancy at birth produced in the 2017 revision of World Population Prospects (WPP) together with data from external sources. We discuss availability, timeliness, and possible explanations for the differences between UNPD estimates and the data from external sources, for selected countries.

Introduction

Life expectancy at birth is a key indicator of public health and human development. Estimates of life expectancy at birth produced by the United Nations Population Division (UNPD) is an integral part of the Human Development Index (HDI) of the United Nations (other two components are education

[1] Poster presentation is available at http://kirillandreev.com/2019_PAA/Andreev-etal_WPP-Life-Tables_PAA2019.poster.pdf

[2] The term "country" as used in the text of this report also refers, as appropriate, to territories or areas.

and personal income). Current levels of life expectancy at birth, however, are often not known to sufficient degree of accuracy as underlying empirical data are often limited and deficient. This adversely affects quality of Human Development Index, ranking of countries, and, in general, makes process of monitoring of human development imprecise. The review of empirical data conducted here is aimed at improving our understanding of strength and deficiencies of mortality estimates for the purpose of monitoring of human development levels.

Statistical Summaries

Figure 1 shows distribution of countries or areas (hereafter, countries) by the year with the latest external data point. Countries having the latest external data point in a certain year are stacked to together in a single bar. The countries in the same world's region are shown in the same style to facilitate tracking of them by the latest data available within the same region. For example, the latest external data point for Denmark is available for 2017, and country code[3] for Denmark ("DNK"), consequently, appears in the bar labeled "2017". Out of the 201 countries, the most recent external data[4] are available only for 60 countries only: 38 in Europe, 14 in Asia, 7 in Africa, and one in Oceania. No countries in Latin America and the Caribbean have data for this period. For 14 countries no data available after 2000, and for 8 countries no data available at all.

Summary of average difference of external estimates of life expectancy at birth by quinquennial periods from UN estimates is shown in Figure 2. Large negative deviations are shown in red, and large positive deviation are shown in blue. For example, for Afghanistan, males, the officially reported numbers in 2000-2005 are 11.7 years lower than UN estimate of 55 years of age, and the cell value equal to -11.7 in 2000-2005 is shown with deep red background. On the other hand, for males in Azerbaijan, the officially reported figures over last 15 years are higher on average by 3 years than UN estimates, and the cells are having blue background.

Figure 3 shows trends in UN life expectancy at birth together with available external data for individual countries. Table 1 shows common sources of external estimates. Figure 3 might include some duplicates and outdated figures as the estimates produced and disseminated by NSOs could be simultaneously reported to e.g. UNSD and collected in other databases. Estimation process of UN life expectancy is described in broader terms in the WPP publications (https://population.un.org/wpp/). Empirical data used for deriving these estimates are not necessary the same as reported in Fig. 3.

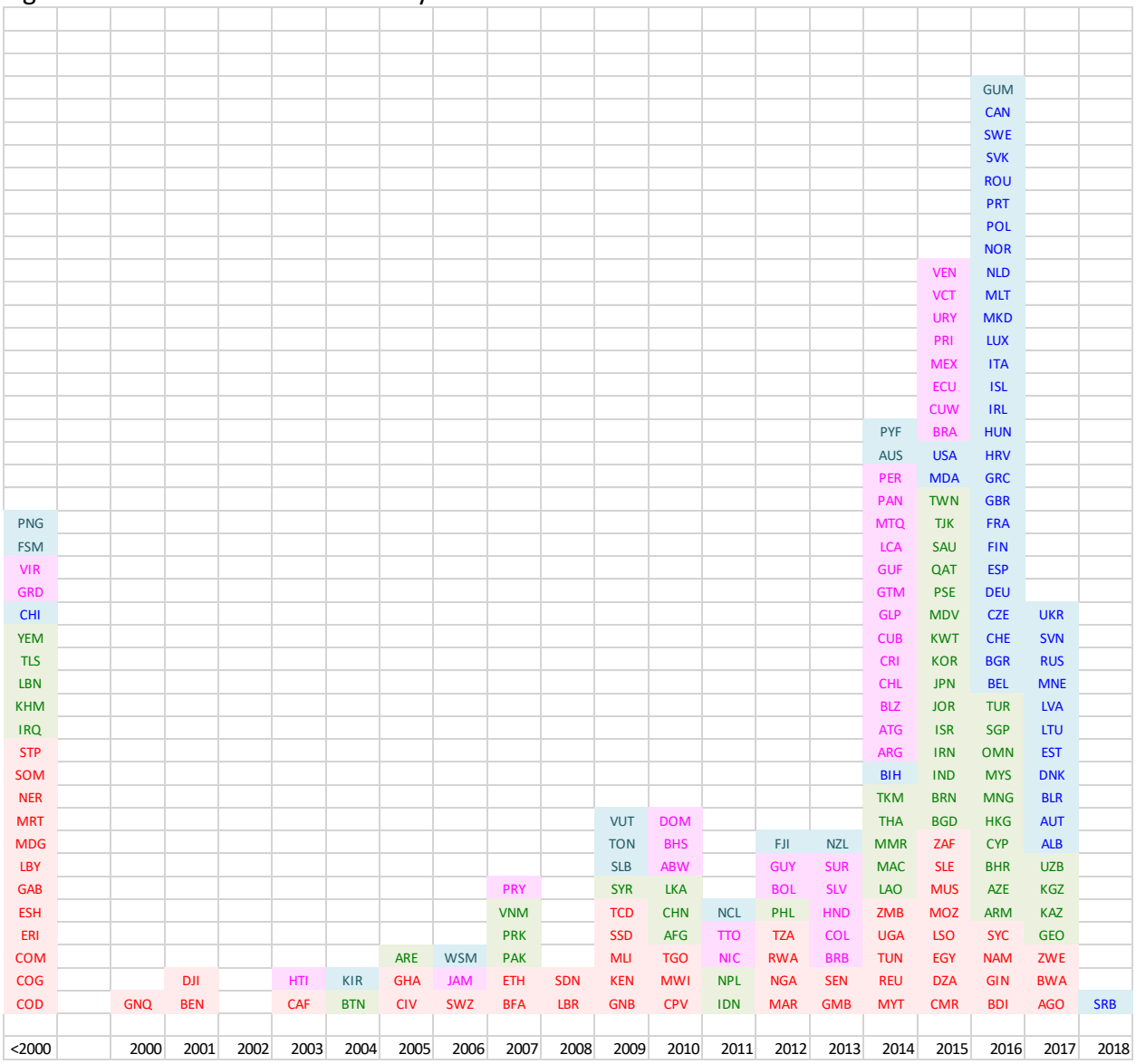
Conclusions

Globally, for almost three quarters of countries we were not able to locate recent[5] external data on life expectancy at birth. For years 2000 or later, UN estimates of life expectancy at birth differ from

[3] Country codes are available here: https://unstats.un.org/unsd/tradekb/knowledgebase/country-code.
[4] At least a single data point for 2016 or 2017
[5] Year 2016 or later

average external estimates by less than a year for 94 countries for males, and 95 for females, for more than a year for 82 countries for males, and for 84 countries for females, and data are not available for 2000 and later, for 25 countries for males, and for 22 countries for females. The large differences between official estimates of life expectancy at birth and UN estimates are currently under review and we hope to find provide explanations for observed differences later on. The analysis conducted here revealed an urgent need for a unified data collection approach, methodology and software tools for producing estimates of life expectancy at birth, an important indicator of public health, from available empirical data that could be used both by the United Nations and the national statistical offices. We hope this work will serve as a first step in this direction.

Figure 1 Distribution of Countries by the Last Data Point Available



Country codes are available here: https://unstats.un.org/unsd/tradekb/knowledgebase/country-code. Out of 22 countries in the "<2000" category, for 14 countries no data available after 2000, and for 8 countries no data available at all. The countries in the same region of the world are shown in the following styles:

Africa	Asia	Europe and Northern America	Latin America and the Caribbean	Oceania

Figure 2 Difference between empirical and UN life expectancy at birth, Males

Country\Period	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015
Afghanistan									-7.5	-8.0	-11.7		3.7	
Albania	5.5	0.0	-2.1	0.2				0.8	1.3	1.2	1.1	0.8	0.4	0.3
Algeria						1.9	-0.8	2.4		1.8	2.8	2.3	1.7	2.3
Angola													3.3	1.6
Antigua and Barbuda		1.2				2.7	1.9	2.2	1.2	0.7	0.9	0.6	0.0	
Azerbaijan					6.4	5.0	2.2	2.9	5.3	4.2	3.1	2.5	2.6	3.0
Argentina		0.8	0.1	-0.3	-0.5	-0.1	0.2	1.0	0.6	0.3	0.2	0.5	0.8	
Australia	-0.1	-0.1	0.0	0.0	-0.2	-0.1	0.0	-0.3	-0.1	0.0	0.0	0.0	0.0	
Austria	-0.3	-0.1	0.0	0.0	-0.2	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.3
Bahamas			-0.5	0.8			-2.4	-1.7	-1.8	-1.0		-1.9	-1.4	
Bahrain						2.2	-3.6	-4.1	-0.6	-1.3	-0.6	0.6	0.9	0.1
Bangladesh					-1.0		1.1	-0.1	-1.9	4.6	-1.8	1.3	0.5	-0.4
Armenia							-0.4	2.9	3.2	2.8	1.1	0.8	0.5	0.6
Barbados	-0.2	4.4	3.7	5.8	3.4	3.2	3.9	2.2	1.0	0.6	2.2	1.5	1.5	
Belgium	-0.2	0.0	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	0.0	0.1	0.1	0.2	0.1	0.0
Bhutan							-1.9		14.0		1.4			
Bolivia (Plurinational State of)						14.4			-9.5	2.7			0.1	
Bosnia and Herzegovina								0.2	2.3	0.5	-0.2	0.1	-0.4	
Botswana					-0.8		-4.7		0.3	13.3	4.5	-2.6	11.4	-2.4
Brazil			3.3		4.5	4.4	4.9	4.5	3.1	0.6	-0.3	-0.5	-0.4	-0.1
Belize						2.2			1.0					
Solomon Islands							1.7			-0.9		-16.3		
Brunei Darussalam					-3.8		1.1				0.3	0.9	0.7	5.0
Bulgaria		0.3	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	-0.1	0.1	-0.1
Myanmar	6.5				6.5	7.4		-1.5			1.1	2.2	-1.8	
Burundi			-6.1									-6.0	1.9	1.1
Belarus		0.9	1.1	1.0	1.7	0.8	0.5	0.9	0.7	0.6	0.5	0.4	-0.4	0.4
Cambodia		4.7												
Cameroon						9.8		2.0				-24.1		-0.6
Canada	-0.1	0.0	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.8
Cabo Verde						-0.8	5.1	0.5			-2.7		4.5	
Central 00African Republic		-1.6									15.0			
Sri Lanka	5.3	6.9	5.6	3.0	-0.5	-0.9	0.4	1.8	2.2	2.5	0.5	0.5	0.4	
Chad			-8.0									10.2		
Chile	-1.4	0.0	-0.2	1.8	0.0	0.1	0.5	-1.2	-1.6	-0.7	0.5	0.1	0.2	
China							2.1	-0.6		0.0		-6.8	2.1	
China, Taiwan Province of China		0.4	0.7	1.1	0.4	0.5	-0.1	-0.1	-0.3	-0.6	-0.8	-0.5	-0.5	-0.9
Colombia	-2.6	3.1	2.3	3.0	3.6	3.3	3.9	2.3	2.3	2.5	2.1	4.0	3.6	
Comoros		2.3												
Mayotte													-1.4	
Congo					14.2		32.9							
Dem. Republic of the Congo	0.7													
Costa Rica	-0.2	6.3	3.4	2.1	2.4	2.8	2.3	1.7	0.8	0.2	0.5	1.0	1.0	
Croatia								0.0	-0.1	-1.1	-0.2	-0.2	-0.3	-0.1
Cuba				2.7	1.7	0.4	-0.1	-0.3	-0.3	-0.6	-0.3	-0.7	-0.8	
Cyprus			5.3		-1.1	-0.9	-1.3	-1.5	-1.4	-1.3	-0.7	0.2	1.0	1.9
Czech Republic	-0.4	0.0	0.2	0.1	-0.1	0.1	-0.1	0.0	-0.1	0.0	-0.1	0.0	0.0	0.3
Benin									-1.3		3.0			
Denmark	-0.1	0.0	0.0	-0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.1
Dominican Republic		7.1									2.7	0.0	3.0	
Ecuador	0.0	0.1	2.8	3.7	2.0	3.3	3.5	3.0	1.8	3.0	3.0	2.7	0.2	0.1
El Salvador		0.5	8.9	4.5	4.8	6.8	-0.6	6.5	3.1	2.8	3.1	2.2	2.6	
Equatorial Guinea							2.2							
Ethiopia							22.2		2.8			-1.4		
Eritrea							7.5							
Estonia		0.7	0.6	0.4	0.4	0.3	0.2	0.7	-0.1	0.3	-0.1	-0.1	0.0	-0.3
Fiji						0.6		2.1		0.0	-1.5	-2.2	-3.1	
Finland	-0.2	0.0	0.0	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	0.0	0.0	-0.1	0.0	0.2
France	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	-0.2
French Guiana								-3.5	-0.6	1.1	-0.8	0.4	0.1	
French Polynesia							0.3	0.2	0.1	0.3	0.0	0.3	-0.5	
Djibouti										-6.4	-3.9			
Gabon			-10.0											
Georgia							-0.5	-0.3	-0.3	1.4	1.2	2.7	1.3	-0.2
Gambia											-37.4		6.5	
State of Palestine											3.2	-0.1	1.9	0.6
Germany		-0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.1	0.0
Ghana														
Kiribati		10.1								-2.0	-2.9			
Greece		1.7	3.1	2.9	2.9	2.5	2.1	1.4	0.3	0.1	0.0	0.0	0.3	0.0
Grenada		2.4	0.3		1.5	1.2								
Guadeloupe	3.9		3.3			1.4					0.6		-0.7	
Guam					-0.2	2.6	0.9	1.3	1.2	1.4	1.3	0.7	-0.7	-3.7
Guatemala					2.0	2.4	2.0	3.3	1.4	1.4	0.7	0.5	0.2	
Guinea	-6.5						24.0			7.6			-0.7	-1.4
Guyana	-1.6	0.3	0.8	1.5	1.6	1.7	2.9	3.6	2.3	0.7	1.5	1.7	1.8	
Haiti					15.7						-22.7			
Honduras			11.3	11.1			7.2	9.8			10.1		-1.4	
China, Hong Kong SAR			-0.3	-2.1	-1.3	-0.7	-0.4	0.0	-0.1	-0.3	0.0	-0.2	0.1	0.5
Hungary	-0.3	-0.1	0.0	0.1	0.0	0.1	0.0	0.1	-0.2	-0.3	-0.1	-0.2	-0.1	0.2
Iceland	-1.0	-0.1	0.2	0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.1	-0.1	-0.3
India		3.1		1.4	1.7	-1.4	0.6	0.3	1.0	-0.1	-0.3	-0.3	-0.2	-0.6
Indonesia	-4.7	-6.1	-6.9	-6.6	-6.5	-5.6	-4.8	-2.4	-1.5			2.7	7.5	
Iran (Islamic Republic of)	4.2	4.0	4.2	4.6	3.8	0.5	13.9	7.8	1.2	-1.5	1.4	3.8	2.3	-2.2
Iraq	7.0	1.8	-1.8	-4.3	-3.2	-0.8	8.2	9.3		-9.0				
Ireland	-1.0		0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	0.0	-0.2	-0.1	-0.1	0.3
Israel	-0.3	0.2	1.2	-0.8	-1.3	-0.8	-0.4	-0.5	-0.7	-0.5	-0.2	-0.4	0.1	0.0
Italy	-0.2	0.0	0.0	-0.1	0.0	-0.2	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	0.0	-0.2
Côte d'Ivoire						4.9				12.0		6.0		
Jamaica	3.5	-1.4		-0.9	-1.7	-0.7	0.8	0.9			2.2	0.6		
Japan	0.0	0.2	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	0.0	0.0	0.0	0.4
Kazakhstan	1.6	1.6	1.6	1.5	1.4	1.4	2.8	1.6	1.6	2.0	1.6	1.0	0.8	-0.2
Jordan	-4.5		-0.2	-7.0	-5.5	-4.0	-3.8	-3.5	-2.8	-1.9	0.6	3.3	-0.1	0.2
Kenya				-2.4			0.7		0.1			4.3		
Dem. People's Rep. of Korea	15.5	4.5	5.4	2.6	1.3	1.2	1.2	1.3	3.0			0.8		
Republic of Korea	0.2	2.4	5.8	3.1	0.2	0.0	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	0.5
Kuwait	2.1	-0.2	3.4	3.3		0.1	0.4	3.5	3.8	3.4	4.1	4.7	5.5	7.3
Kyrgyzstan							0.2	0.7	0.0	0.1	0.4	-0.1	-0.5	0.0
Lao People's Dem. Republic									-3.1	0.9	-1.1	-3.6	2.5	
Lebanon										-1.3				
Lesotho		-1.9	10.4	4.7	5.8	1.3		15.8		-4.5	-0.4	-12.0	-9.7	2.6

Country\Period	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015
Latvia					0.4	0.2	0.1	0.6	0.1	0.5	0.2	-0.1	0.0	0.0
Liberia					8.0							-24.1		
Libya														
Lithuania		0.5	0.6	0.4	0.3	0.4	0.1	0.5	0.2	0.9	0.5	-0.3	0.0	-0.4
Luxembourg	0.8	0.6	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	-0.1	0.7	0.6	0.5
China, Macao SAR							0.7	-0.9		-0.7	0.3	-0.5		
Madagascar				-4.2				8.6						
Malawi					0.1	-4.4	-2.8	13.5	-1.1	-3.4	0.2	-4.3	-17.4	
Malaysia				-0.5		-0.5	0.2	0.2	0.4	-0.2	0.0	0.3	-0.3	-0.5
Maldives							1.0	2.2	1.8	3.6	0.8	-0.3	-0.6	-3.2
Mali						14.7		13.5		15.3		22.2		
Malta	-1.2	-0.4	-1.1	-1.8	-2.2	-2.6	-2.6	-1.2	-0.7	-0.7	-0.6	-0.5	0.2	1.0
Martinique	1.2		2.3		0.6						0.2	0.1	0.6	
Mauritania						-2.5		8.9						
Mauritius		1.4	-1.8	-2.0	-1.8	-2.1	-1.1	-0.4	-0.5	0.1	-0.1	0.0	0.2	0.1
Mexico	0.6	3.4	2.0	0.5	-0.6	-0.1	0.3	0.7	0.3	-0.4	-0.1	-0.6	-1.3	-0.9
Mongolia							2.5	1.6	-0.1	-0.4	-1.3	-0.5	0.6	
Republic of Moldova						0.6	0.7	0.4	0.8	1.7	1.1	1.0	1.7	
Montenegro			0.3		3.0		1.7		0.6		0.1	-0.1	0.2	0.3
Morocco							2.7						-1.3	
Mozambique										-8.4		-5.4	-3.9	-3.9
Oman									-1.0	1.5	1.4	0.8	0.3	-0.6
Namibia											-2.1	-7.1	-1.1	-1.0
Nepal						4.4					-1.6	-1.7	3.8	
Netherlands	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.2	0.1
Curaçao												-1.0	0.0	-0.2
Aruba					-0.1		1.6		0.1	-1.3			1.3	
New Caledonia							-1.0	-0.8	-1.0	0.3	0.1	0.7	0.6	
Vanuatu												2.9		
New Zealand	-0.9	0.0	0.1	-0.1	-0.1	-0.2	0.0	-0.2	-0.1	-0.2	-0.2	-0.1	-0.1	
Nicaragua			19.5	11.4	15.4	15.2		9.6	6.7	6.0	5.3	1.5	3.8	
Niger														
Nigeria			-0.4	-0.5				7.9				0.3	5.8	
Norway	-0.1	0.1	0.0	0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	0.3
Micronesia (Fed. States of)									-1.4	-0.2				
Pakistan			5.8			3.5					2.3	0.0		
Panama	6.5	4.7	3.5	3.1	3.1	3.8	3.7	3.1	2.1	1.8	-0.3	1.6	0.8	
Papua New Guinea										-5.6				
Paraguay	0.0	0.1	0.1	3.6	3.7	4.8	5.4	6.2	6.4	0.4	-2.7	0.1		
Peru			2.5			9.7	9.5	8.8	7.0	0.2	5.6	3.4		
Philippines				3.3	2.2	2.6	2.5	1.4	2.8	2.9	2.3	2.7	2.7	
Poland	0.6	-0.7	-0.1	0.3	0.3	0.5	0.3	0.3	-0.1	0.0	0.0	-0.2	0.0	0.1
Portugal	-0.8	0.0	-0.1	-0.2	-0.2	-0.5	-0.1	-0.2	-0.2	-0.3	-0.1	-0.1	-0.1	-0.1
Guinea-Bissau												4.8		
Timor-Leste														
Puerto Rico	0.8	1.3	0.6	0.8	-0.4	-0.5	0.4	-0.1	-0.1	0.4	0.4	-0.3	-0.2	0.7
Qatar										-6.9	0.1	1.4	0.2	1.6
Réunion	2.6		0.0								-1.5	-0.4	0.7	
Romania		0.6	0.1	0.6	0.2	0.4	0.1	0.2	0.1	0.0	0.0	-0.2	-0.2	-0.7
Russian Federation	7.5	2.0	1.2	0.8	0.5	0.4	0.2	0.9	0.2	0.4	0.0	0.2	0.0	-0.4
Rwanda						0.8					10.7	-10.3	-0.1	
Saint Lucia	7.2	5.5	3.4	5.1	3.4	1.3	1.1	0.7	0.9	1.3	1.3	0.5	1.0	
St. Vincent and the Grenadines		3.2									-1.4		-2.4	0.0
Sao Tome and Principe														
Saudi Arabia										4.4	6.4	4.8	3.4	10.0
Senegal											3.2		-1.1	
Serbia	-1.1		1.4		0.1		0.7		0.5	0.7	0.7	0.6	0.2	-0.3
Seychelles		2.3			-0.9	0.1	-1.3					0.5	0.0	0.9
Sierra Leone											3.1			-2.4
Singapore		-0.4	-0.4	0.0	-0.1	-0.3	-1.2	-1.4	-0.7	0.2	0.3	-0.1	0.1	-0.3
Slovakia	-0.9	-0.6	0.1	0.2	-0.1	0.0	0.0	0.1	0.0	0.0	-0.1	-0.2	0.0	0.3
Viet Nam						1.5				6.3		4.9		
Slovenia			0.1				-0.6	-0.4	-0.3	-0.3	-0.4	-0.2	0.0	-0.1
Somalia														
South Africa	9.8	7.3							0.4	-4.5	5.7	8.8	5.8	1.7
Zimbabwe	0.6		16.4							1.7	15.3	-5.7	2.1	-2.2
Spain	-0.4	-0.2	0.1	-0.1	-0.1	-0.2	0.0	-0.1	-0.2	-0.2	-0.2	-0.2	0.0	0.0
South Sudan									-13.9			1.7		
Sudan									-7.1			-39.8		
Western Sahara														
Suriname			3.8		1.6	-1.2	-1.3	2.9	3.2		2.0	2.3	1.9	
Swaziland						-6.5		-3.6		6.4		-7.0		
Sweden	0.1	0.1	0.0	-0.1	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.1	0.1	-0.2
Switzerland	0.0	0.1	-0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	-0.2
Syrian Arab Republic				-2.6	-6.5	0.9	-0.4			-1.7		2.4		
Tajikistan							0.7	2.6	3.5	1.9	2.2	3.1	3.9	4.0
Thailand		1.4	5.2		1.8	3.1		0.6	0.6	-0.6	0.4	1.5	2.4	
Togo			-6.8		-2.1		25.5						6.8	
Tonga										1.1		-1.5		
Trinidad and Tobago	1.2	0.8	0.6	1.1	1.0	1.4	2.0	2.0	1.6	2.0	2.2	2.6	3.6	
United Arab Emirates										-1.8		1.9		
Tunisia						2.4	2.3	3.2	0.3	0.1	-0.3	0.1	0.6	
Turkey	8.9					23.5	21.6	17.1		0.4	-0.4	1.6	3.6	2.9
Turkmenistan							2.6	2.2	3.0	2.8	4.8	3.9	3.1	
Uganda											2.5	-7.8	-6.2	
Ukraine		1.7	1.5	-0.6	0.7	0.6	0.4	0.6	0.3	0.2	0.5	0.1	0.4	0.1
TFYR Macedonia							2.0	1.0	-0.1	-0.3	-0.4	-0.3	-0.2	0.0
Egypt		5.1	1.6	5.6	5.6	3.9	3.0	1.6	2.6	1.5	1.1	0.7	-0.1	1.3
United Kingdom	-0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	0.0	0.0	-0.1	0.0	-0.1	-0.4
Channel Islands														
United Republic of Tanzania				0.0	34.5			3.0			-1.0	-1.8	4.3	
United States of America	0.1	0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0.0
United States Virgin Islands														
Burkina Faso							10.0		2.9		4.7			
Uruguay	2.3	0.8	0.3	-0.8	-0.6	-0.5	-0.1	0.0	0.1	-0.5	-0.4	-0.2	-0.5	0.0
Uzbekistan							1.1	1.0	1.6	1.3	1.7	2.9	2.5	1.7
Venezuela (Bolivarian Republic of)		3.7	4.1	2.0	2.0	2.1	2.8	2.4	2.2	2.1	1.6	1.1	1.8	
Samoa				7.6	6.5					4.6	7.7			
Yemen									-0.6					
Zambia					1.2						-1.9			

Figure 3 (cont.), Females

Country\Period	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015
Afghanistan									-8.6	-9.1	-14.4		1.5	
Albania	4.4	-0.6	-3.0	0.1				0.7	1.5	2.2	0.9	0.3	0.0	-0.1
Algeria						2.2	-1.2	3.5		1.9	1.9	1.6	0.9	1.0
Angola													5.0	-1.3
Antigua and Barbuda		0.4			1.3	0.3	2.9	3.1	2.2	1.7	1.8	1.5	0.5	
Azerbaijan					6.6	5.7	2.6	2.8	5.0	2.9	2.7	1.7	1.5	2.6
Argentina			-0.3	-0.2	-0.3	0.3	0.4	0.9	0.8	0.5	0.0	-0.2	-0.4	
Australia	-0.1	-0.1	-0.1	-0.1	-0.3	-0.1	0.0	-0.2	-0.1	0.0	0.0	0.0	0.0	
Austria	-0.3	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.2
Bahamas			1.5	1.0			-2.7	1.2	-1.3	-0.8			-1.0	
Bahrain						-4.2	2.7	-0.5	-0.7	-0.9	0.0	0.6	0.6	0.1
Bangladesh							0.2	-1.1	-3.1	2.7	-1.9	0.6	0.8	-1.2
Armenia								3.1	3.6	2.6	0.9	0.8	0.5	0.2
Barbados	-0.1	4.6	4.4	4.3	3.7	3.3	4.2	2.9	1.9	1.4	1.5	1.8	1.7	
Belgium	-0.2	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	0.0	0.0	0.2	0.2	0.3	0.1	-0.1
Bhutan							0.6		14.3		0.8			
Bolivia (Plurinational State of)						17.8			-7.5	2.2			-0.4	
Bosnia and Herzegovina								0.4	0.8	0.6	-0.2	0.2	-0.1	
Botswana					1.7		0.7		1.3	10.7	6.0	4.2	11.4	0.5
Brazil			2.3		4.8	4.8	5.3	4.7	2.9	0.2	-0.6	-0.9	-0.9	-0.3
Belize						0.6			0.7	4.8			2.1	
Solomon Islands							1.9			-1.2		11.7		
Brunei Darussalam					-6.5		0.7				-0.1	0.0	0.3	2.0
Bulgaria		0.4	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.2	0.1
Myanmar	3.3				5.4	7.2		-1.2			1.1	2.6	0.6	
Burundi			-5.8									-3.6	2.1	1.4
Belarus		2.4	2.3	2.0	2.6	2.0	1.4	0.6	0.3	1.0	0.9	0.7	-0.3	0.1
Cambodia		0.6												
Cameroon						11.5		2.4				-27.9		1.0
Canada	-0.3	-0.1	-0.2	-0.2	-0.1	-0.2	0.0	-0.1	0.0	-0.2	0.0	-0.1	0.0	-0.5
Cabo Verde						-1.8	4.5	5.1			5.3		10.1	
Central 00African Republic		-1.7									8.9			
Sri Lanka	0.3		0.4	1.4	-0.5	-0.4	0.4	1.6	2.9	3.4	0.7	0.3	0.4	
Chad			-5.7									10.8		
Chile	-1.4	0.0	-0.2	1.2	0.0	0.3	0.5	-0.6	-1.0	-0.7	0.7	0.3	0.4	
China							2.5	-0.3		0.5		-6.3	3.8	
China, Taiwan Province of China		-0.2	0.1	0.8	0.2	0.3	0.0	-0.2	-0.1	-0.5	-0.9	-0.5	-0.3	-0.5
Colombia	-4.1		0.6	3.2	3.8	3.6	2.9	1.7	1.6	2.2	1.6	2.9	2.3	
Comoros		2.1												
Mayotte													-5.6	
Congo						14.6		5.7						
Dem. Republic of the Congo	0.3													
Costa Rica	0.4		2.3	1.6	1.8	2.0	1.2	0.8	0.4	0.5	0.7	1.1	1.1	
Croatia								0.2	0.1	-0.7	-0.1	-0.2	-0.3	-0.3
Cuba					2.6	1.7	0.6	0.7	0.2	0.1	0.0	0.1	-0.6	-0.8
Cyprus			4.0		-2.3	-1.8	-2.0	-1.6	-1.1	-0.6	-0.1	0.6	1.2	1.8
Czech Republic	-0.4	-0.1	0.1	0.1	-0.1	0.1	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	0.0	0.3
Benin									0.2		3.9			
Denmark	-0.1	0.0	-0.1	-0.1	-0.1	0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.1
Dominican Republic		5.6								0.1		0.1	2.6	
Ecuador	0.0	0.1	2.8	2.9	-1.4	3.9	3.5	3.2	1.6	2.2	2.2	2.6	2.5	0.3
El Salvador		-1.8	8.1		4.2	5.4	3.1	4.5	3.0	2.1	2.3	1.7	1.3	
Equatorial Guinea							2.0				5.0			
Ethiopia							21.7		1.7			-1.2		
Eritrea							6.7							
Estonia		0.2	0.5	0.3	0.3	0.2	0.2	0.3	0.0	0.1	-0.1	0.0	0.1	-0.2
Fiji						0.5		2.6		-0.4	-2.5	-4.2	-4.9	
Finland	-0.2	-0.1	0.0	-0.2	-0.1	-0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.1
France	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.2
French Guiana								-1.2	0.1	1.7	-0.5	-0.2	-0.3	
French Polynesia							0.9	0.3	-0.2	0.4	0.1	0.3	-0.7	
Djibouti										-6.7	-4.7			
Gabon			1.4											
Georgia								-0.2	0.0	1.3	0.6	2.5	1.3	-0.4
Gambia											-36.6		7.3	
State of Palestine											3.3	1.1	1.0	-0.1
Germany		-0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.1	-0.1
Ghana												7.4		
Kiribati		7.8									1.2	-4.7		
Greece		0.4	2.0	1.6	1.8	1.2	0.3	0.0	-0.1	-0.1	-0.2	-0.1	0.2	0.0
Grenada		4.1	2.8		1.4	1.1								
Guadeloupe	4.3		2.9			1.0					0.4		-0.2	
Guam						4.0		3.6	3.9	3.7	2.6	1.5	0.4	-3.5
Guatemala					2.1	2.7	3.5	2.9	0.9	1.8	1.4	1.3	0.4	
Guinea	-6.8						24.8			12.8			1.4	0.5
Guyana	-3.7	-1.8	-0.7	1.2	1.5	1.6	2.6	3.3	3.1	3.5	1.4	2.7	3.2	
Haiti					18.9						-22.5			
Honduras			10.5	9.8	5.3	7.0	7.9				10.5		7.4	
China, Hong Kong SAR			-0.6	-1.7	-0.7	-0.5	-0.2	0.1	-0.1	-0.3	-0.1	-0.3	-0.1	0.4
Hungary	-0.3	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	-0.2	-0.3	-0.2	-0.1	-0.1	0.0
Iceland	-1.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.4
India		3.1		1.1	0.7	-2.2	0.6	0.1	1.2	0.1	0.1	0.6	0.0	-1.3
Indonesia	-6.6	-7.4	-7.9	-7.1	-6.3	-5.4	-3.6	-1.6	-1.0			2.4	8.3	
Iran (Islamic Republic of)	7.4	6.2	5.1	4.0	3.3	-0.4	2.1	-3.8	0.7	-0.6	2.7	3.8	2.8	-1.5
Iraq	6.6	3.7	1.2	-1.6	-1.3	0.5	-2.6	3.6		-11.8				
Ireland	-1.0		0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0
Israel	-0.4	0.1	0.7	-0.5	-1.1	-0.6	-0.4	-0.6	-0.8	-0.6	-0.2	-0.1	0.2	0.2
Italy	-0.2	0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	-0.1
Côte d'Ivoire						4.6				8.2		8.1		
Jamaica	4.1	-3.3		0.0	-0.4	0.1	-0.3	0.4	1.8	1.1	0.4	0.1		
Japan	0.1	0.2	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	0.0	0.0	0.0	0.2
Kazakhstan	1.4	1.4	1.3	1.2	1.2	1.1	1.6	0.9	1.5	1.5	1.3	0.6	0.6	-0.2
Jordan	-1.1		-1.4	-5.7	-4.4	-3.1	-3.0	-2.7	-2.0	-2.4	-2.0	0.6	-2.0	-1.8
Kenya				-2.3			0.6		2.6			11.6		
Dem. People's Rep. of Korea	7.2	2.0	2.6	-0.1	-0.2	1.2	1.3	1.5	2.7			1.0		
Republic of Korea	-0.5	0.6	7.3	3.4	0.0	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.4	-0.1	0.4
Kuwait	3.1	0.6	4.0	4.2		1.5	2.0	3.9	3.7	2.7	2.3	2.4	3.4	4.6
Kyrgyzstan							0.3	0.3	0.4	0.5	0.5	-0.1	-0.4	0.0
Lao People's Dem. Republic									1.8	1.7	0.2	-1.1	-9.7	
Lebanon										-1.5				
Lesotho		-3.3	15.1	7.2	15.6	7.3		20.3		1.8	5.8	-12.1	-7.8	8.6

Country\Period	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015
Latvia					0.3	0.2	0.2	0.3	0.1	0.5	0.2	-0.2	-0.1	-0.2
Liberia					2.5							-25.4		
Libya														
Lithuania		0.2	0.6	0.4	0.3	0.2	0.1	0.3	0.2	0.3	0.1	-0.3	-0.1	-1.0
Luxembourg	-0.1	-0.2	0.0	-0.1	-0.1	-0.2	-0.3	-0.5	-0.8	0.0	-0.2	0.3	0.5	1.1
China, Macao SAR								1.6	-1.0		-1.4	0.4	0.0	
Madagascar				-5.2					8.5					
Malawi					1.9	-3.0	-3.9	19.4	-2.1	-4.6	3.4	-4.9	-16.1	
Malaysia				0.8		1.0	1.3	1.2	0.8	0.3	0.0	-0.1	-0.1	-0.4
Maldives							-0.3	2.7	1.1	3.0	-0.6	-1.1	-0.8	-3.7
Mali						17.3		16.4		18.1		24.5		
Malta	-1.6	-1.0	-1.2	-1.7	-1.7	-1.9	-1.9	-0.3	0.2	0.5	0.4	0.5	0.9	1.8
Martinique	2.3		4.3		3.5						0.3	-0.1	-0.3	
Mauritania						17.9		8.5						
Mauritius		1.3	-1.0	-1.5	-1.3	-1.5	-1.0	-0.5	-0.3	0.4	-0.3	0.0	-0.2	-0.3
Mexico	-0.1	2.4	0.8	0.0	-1.3	-0.3	0.4	0.9	1.0	0.6	0.4	-0.2	-0.7	-0.5
Mongolia										-0.3	0.2	-0.9	0.1	1.9
Republic of Moldova							1.0	0.8	0.2	0.3	1.2	1.0	0.6	0.9
Montenegro			1.8		0.5			-0.1		0.5	0.4	-0.3	-0.1	0.1	0.0
Morocco									2.4					-0.9	
Mozambique										-5.0		-2.1	-3.4	-3.9
Oman										-4.0	0.2	-0.3	0.2	-0.4	-0.4
Namibia												-2.8	-4.9	3.0	-5.6
Nepal							0.8					-3.2	-3.5	5.3	
Netherlands	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	-0.2
Curaçao												-0.9	0.5	-0.2
Aruba					1.7		1.7		1.2	-0.3			2.2	
New Caledonia							0.2	-0.2	0.4	0.7	0.8	2.2	1.3	
Vanuatu												5.8		
New Zealand	-1.1	-0.1	0.0	-0.1	-0.2	0.0	-0.1	-0.2	-0.1	-0.2	-0.1	-0.1	-0.1	
Nicaragua					16.3	15.5		9.5	7.3	5.9	4.7	0.6	2.7	
Niger														
Nigeria			-3.6	-3.8				6.6				1.2	13.2	
Norway	-0.2	0.0	-0.2	0.0	0.0	0.0	0.1	0.0	-0.1	0.0	-0.1	0.0	-0.1	0.1
Micronesia (Fed. States of)									-0.1	-0.3				
Pakistan			1.6			3.1					0.2	2.7		
Panama	7.0	5.2	4.0	3.1	2.4	3.0	3.0	2.2	1.7	2.2	-0.3	1.3	0.7	
Papua New Guinea										-9.4				
Paraguay	0.1	0.0	0.1	2.5	0.1	3.1	4.5	5.3	5.8	0.4	-1.5	0.1		
Peru			3.0			9.2	8.3	7.7	6.4	6.0	6.5	5.7		
Philippines				6.4	4.7	4.7	4.9	2.4	4.3	4.4	3.0	3.0	2.7	
Poland	0.6	-0.3	-0.1	0.1	0.1	0.4	0.3	0.2	-0.1	-0.1	0.0	-0.1	0.1	0.3
Portugal	-1.1	-0.3	-0.4	-0.3	-0.6	-0.4	-0.2	-0.2	-0.3	-0.3	-0.2	-0.3	-0.2	0.2
Guinea-Bissau												4.5		
Timor-Leste														
Puerto Rico	-0.3	0.4	0.1	0.5	-0.2	0.1	0.4	-0.4	-0.1	-0.5	-0.1	-0.5	-0.6	0.8
Qatar										-6.6	-2.6	-0.8	2.2	2.5
Réunion	2.8		-0.4								-0.7	-0.1	0.5	
Romania		0.7	0.1	0.5	0.2	0.2	0.1	0.1	0.0	0.1	-0.2	-0.1	-0.1	-0.3
Russian Federation	7.8	2.3	1.3	1.0	0.8	0.3	0.2	0.4	0.2	0.3	0.0	0.1	-0.1	-0.5
Rwanda						0.4					16.9	-9.6	-0.4	
Saint Lucia	3.9	1.4	-0.8	2.7	1.4	-0.2	-1.0	0.0	1.0	1.9	2.7	1.7	1.9	
St. Vincent and the Grenadines		0.6									-0.2		-0.5	-0.1
Sao Tome and Principe														
Saudi Arabia										1.8	4.1	2.9	2.0	5.0
Senegal											-4.5		-1.5	
Serbia	-1.7		0.2		-0.4		0.0		0.5	0.1	0.4	0.4	0.1	-0.4
Seychelles		2.7			-1.3	-0.4	-0.4					0.4	-0.2	0.0
Sierra Leone											3.7			-0.9
Singapore		-1.1	-0.5	-0.2	-0.3	-0.3	-0.8	-0.6	-0.4	0.0	0.0	-0.2	0.3	0.0
Slovakia	-0.5	-0.4	0.0	0.0	-0.2	-0.1	0.0	0.0	0.1	-0.1	-0.1	-0.2	-0.1	0.2
Viet Nam						-3.3				4.4		4.1		
Slovenia			0.3				-0.6	-0.3	-0.3	-0.4	-0.3	-0.2	0.0	0.1
Somalia														
South Africa	9.3	8.7								2.0	0.3	5.4	8.4	4.8	-1.7
Zimbabwe	-1.5		20.3							1.7	18.4	-3.7	5.6	-3.0
Spain	-0.4	-0.2	0.0	-0.1	-0.2	-0.3	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	0.1
South Sudan									-11.6			1.4		
Sudan									-5.3			-43.1		
Western Sahara														
Suriname			2.5		0.2	2.5	-1.7	0.9	1.3		1.4	1.2	1.0	
Swaziland						-3.8		-0.7		6.5		-10.0		
Sweden	0.1	0.1	0.1	-0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	-0.1
Switzerland	0.0	0.1	-0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	-0.1
Syrian Arab Republic				-1.1	-4.8	0.0	0.7			-3.5		0.5		
Tajikistan								1.8	2.2	0.3	0.2	1.6	3.0	3.4
Thailand		2.0	5.2		-0.6	3.9		0.7	1.0	0.5	0.3	1.9	1.0	
Togo			-2.0				36.5						10.4	
Tonga										-0.2		-2.7		
Trinidad and Tobago	1.9	1.9	0.4	0.3	0.3	1.2	1.4	1.8	1.3	0.6	1.3	2.7	3.0	
United Arab Emirates										-1.6		1.9		
Tunisia						4.7	4.3	3.8	0.4	0.5	-1.2	-0.7	0.1	
Turkey	7.3					22.2	19.9	14.8		-2.5	-3.0	-0.3	2.7	2.0
Turkmenistan							2.0	1.6	1.9	1.4	3.9	3.8	3.3	
Uganda											3.5	-2.0	-3.5	
Ukraine		3.2	1.7	0.0	0.2	0.2	0.4	0.5	0.2	-1.9	0.4	0.2	0.2	-0.1
TFYR Macedonia							2.9	1.0	0.2	-0.5	-0.7	-0.1	0.0	-0.1
Egypt		4.9	2.5	5.4	5.8	4.6	3.1	1.1	2.0	0.9	1.1	1.1	0.5	-0.4
United Kingdom	-0.2	-0.1	-0.1	0.0	-0.1	-0.1	0.0	-0.1	0.0	0.0	-0.1	0.0	-0.1	-0.4
Channel Islands														
United Republic of Tanzania				0.0	30.6			2.5			-0.3	0.3	8.6	
United States of America	-0.1	-0.1	-0.2	-0.1	-0.1	0.0	0.0	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.5
United States Virgin Islands														
Burkina Faso								11.4		3.8		6.0		
Uruguay	1.2	0.3	0.3	-0.4	-0.1	-0.3	0.0	-0.1	0.0	-0.1	-0.1	0.0	0.0	-0.3
Uzbekistan							1.1	0.9	1.2	0.6	0.7	1.7	2.5	2.3
Venezuela (Bolivarian Republic of)			3.7	2.6	0.4	0.7	1.5	2.4	2.3	1.0	0.7	1.4	1.2	-0.3
Samoa					4.7	3.2					4.6	4.7		
Yemen										-1.3				
Zambia						0.0						-3.0		

Table 1 Common sources of external estimates

NSO	Official estimates. The series are from National Statistical Offices (NSO), either from NSO's websites, or from publications. The data collected by the United Nations Population Division. Estimation methods could be found in the NSO publications or online but it is not necessarily readily available for all countries.
SYB	Official estimates. The series are from National Statistical Offices (NSO) but from statistical year books only.
UNSDDYB	Official estimates reported by the member states to the United Nation Statistics Division (UNSD). The data are collected annually by sending questionnaires to relevant statistical authorities in the countries. Information on the estimation process is not collected and is not available for such series. For European countries, UNSD receives data from Eurostat.
Eurostat	The data are Eurostat online database. Documentation is available at the Eurostat website (https://ec.europa.eu/eurostat/data/database).
Transmonee	The series are from Transmonee database of UNICEF (http://transmonee.org/). The data collection for this database is similar to that of UNSD but covers only countries of former Eastern Europe and Central Asia, and selected countries and indicators data from surveys are included as well.

Figure 3 Trends in Estimates of Life expectancy at Birth for all Countries in the World Together with External Data Compiled from Different Sources

The figure is available at this link

http://kirillandreev.com/2019_PAA/Andreev_etal_WPP-Life-Tables--Data-and-Methods_FigureCountries.pdf

(due to problems with uploading to the PAA website)