Bulgaria

**Detailed Human Capital projections to 2060**

Comparison of CEPAM projections with other sources
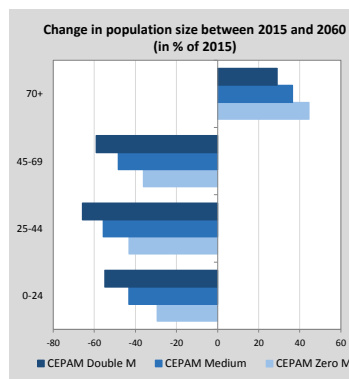
Demographic indicators - CEPAM Medium Scenario (SSP2), Eurostat and national projections		2015	2020	2030	2040	2050	2060
Population (in millions)	CEPAM	7.18	6.88	6.22	5.57	5.00	4.45
	Eurostat	7.20	6.95	6.41	5.93	5.56	5.23
	National	7.17	6.92	6.47	6.06	5.70	5.36
Proportion age 65+	CEPAM	20.1%	21.7%	23.2%	24.7%	26.2%	28.4%
	Eurostat	20.0%	21.7%	24.7%	28.0%	31.5%	33.4%
	National	20.5%	21.9%	24.3%	27.2%	30.1%	31.2%
Proportion below age 20	CEPAM	18.3%	19.2%	18.7%	17.2%	17.1%	17.0%
	Eurostat	18.2%	18.9%	18.9%	18.1%	18.5%	18.9%
	National	18.3%	18.9%	18.3%	17.3%	17.9%	18.1%
Median age	CEPAM	43.5	44.9	48.1	51.0	51.5	51.6
	Eurostat	43.5	44.8	47.9	50.5	50.1	49.4
	National	43.7	44.9	47.5	49.4	48.6	48.8
Old-age dependency ratio (65+/15-64)	CEPAM	0.30	0.34	0.40	0.48	0.61	0.68
	Eurostat	0.30	0.34	0.40	0.48	0.58	0.63
	National	0.31	0.34	0.39	0.45	0.53	0.56
Young-age dependency ratio (0-14/15-64)	CEPAM	0.21	0.23	0.22	0.21	0.23	0.24
	Eurostat	0.21	0.23	0.22	0.22	0.25	0.26
	National	0.21	0.22	0.21	0.21	0.23	0.23
Parent support ratio (85+/50-64)	CEPAM	0.08	0.09	0.10	0.16	0.25	0.39
	Eurostat	0.08	0.10	0.12	0.19	0.27	0.42
	National	0.09	0.11	0.12	0.18	0.26	0.36

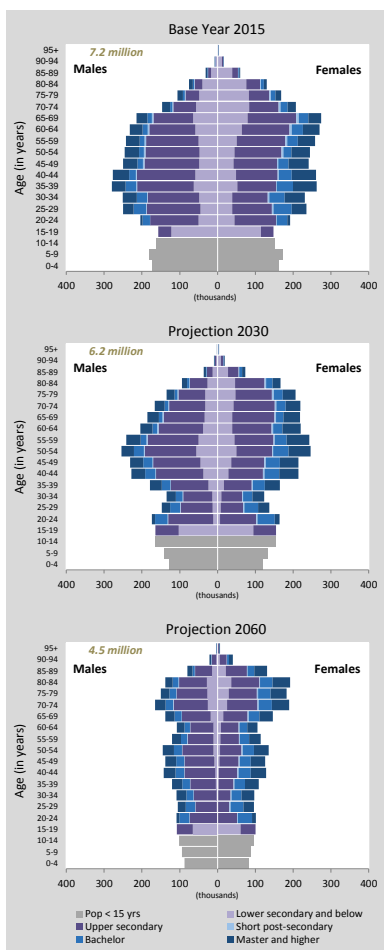| Demographic assumptions underlying projections		2010-2015	2015-2020	2025-2030	2035-2040	2045-2050	2055-2060
Total fertility rate	CEPAM	1.54	1.52	1.61	1.60	1.60	1.61
	Eurostat	1.58	1.64	1.68	1.72	1.75	1.78
	National	1.54	1.53	1.53	1.55	1.58	1.60
Life expectancy at birth (in years)							
Male	CEPAM	71.5	72.7	73.8	76.0	78.3	80.6
	Eurostat	72.0	73.3	74.5	76.8	79.0	81.0
	National	72.2	73.5	74.7	76.9	79.0	80.9
Female	CEPAM	78.4	79.5	80.5	82.6	84.7	86.8
	Eurostat	78.7	79.7	80.7	82.6	84.3	86.0
	National	78.8	79.9	80.8	82.7	84.3	85.8
Five-year net migration flow (in thousands)	CEPAM	-93.0	-88.1	-82.8	-72.0	-62.4	-53.8
	Eurostat	-41.9	-61.5	-53.5	6.2	13.4	10.9
	National	-25.0	-10.3	-5.1	3.0	9.4	15.2
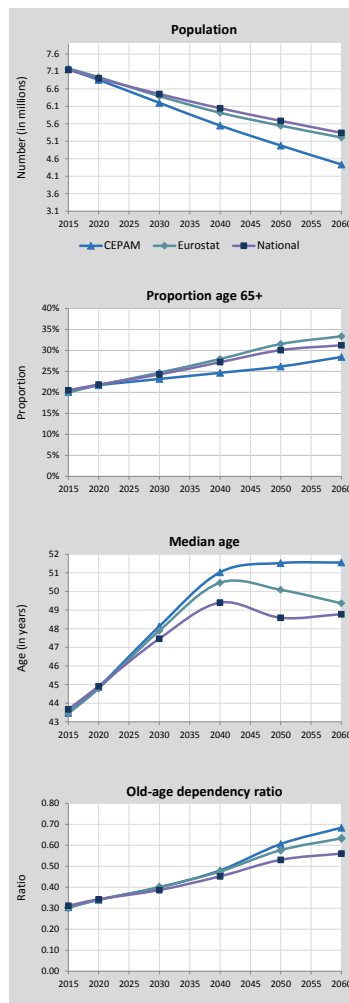
Changes in population size and structure according to CEPAM scenarios (impact of migration)

Population size according to CEPAM projections to 2060		2015	2020	2030	2040	2050	2060
Population (in millions)	Zero M	7.18	6.97	6.53	6.08	5.69	5.32
	Medium	7.18	6.88	6.22	5.57	5.00	4.45
	Double M	7.18	6.78	5.92	5.09	4.37	3.71
Population 0-24 (in millions)	Zero M	1.71	1.65	1.60	1.43	1.29	1.20
	Medium	1.71	1.62	1.50	1.27	1.08	0.97
	Double M	1.71	1.59	1.41	1.12	0.90	0.77
Population 25-44 (in millions)	Zero M	2.05	1.89	1.48	1.30	1.32	1.16
	Medium	2.05	1.84	1.33	1.10	1.10	0.91
	Double M	2.05	1.78	1.18	0.93	0.91	0.70
Population 45-69 (in millions)	Zero M	2.47	2.40	2.31	2.19	1.78	1.58
	Medium	2.47	2.39	2.26	2.04	1.54	1.28
	Double M	2.47	2.38	2.21	1.90	1.32	1.01
Population 70+ (in millions)	Zero M	0.95	1.03	1.13	1.17	1.30	1.38
	Medium	0.95	1.03	1.13	1.16	1.27	1.30
	Double M	0.95	1.03	1.13	1.15	1.25	1.23

Population

Proportion age 65+

Median age

Old-age dependency ratio

Change in population size between 2015 and 2060 (in % of 2015)

Bulgaria (Continued)

Pyramids by education, CEPAM Medium

Base Year 2015

7.2 million

Males / Females

Projection 2030

6.2 million

Males / Females

Projection 2060

4.5 million

Males / Females

Legend: Pop < 15 yrs / Lower secondary and below / Upper secondary / Short post-secondary / Bachelor / Master and higher

Detailed Human Capital projections to 2060

Human Capital indicators, CEPAM Medium (SSP2)	2015	2020	2030	2040	2050	2060
Population age 25+: highest educational attainment (columns sum to 100%)						
E1-E4 - lower secondary and below	25.7%	22.8%	18.4%	14.9%	12.2%	9.8%
E5 - upper secondary	47.3%	48.3%	49.6%	49.8%	49.0%	47.9%
E6 - short post-secondary	1.6%	1.6%	1.6%	1.5%	1.5%	1.6%
E7 - bachelor	9.6%	10.5%	12.0%	13.7%	15.6%	17.5%
E8 - master and higher	15.8%	16.8%	18.4%	20.1%	21.7%	23.3%
Mean years of schooling (in years)	11.24	11.51	11.93	12.33	12.72	13.11
Age gap: highest educational attainment (ratio 35-44/50-64)						
E1-E4 - lower secondary and below	0.98	1.04	0.69	0.47	0.42	0.42
E5 - upper secondary	0.91	0.88	1.01	1.07	1.01	0.94
E6 - short post-secondary	0.56	0.60	1.08	1.25	1.17	1.17
E7 - bachelor	1.43	1.70	1.42	1.18	1.18	1.17
E8 - master and higher	1.15	1.04	1.06	1.17	1.18	1.17
Mean years of schooling (35-44 minus 50-64)	0.31	0.55	1.35	1.28	0.77	0.62
Gender gap (population age 25+): highest educational attainment (ratio male/female)						
E1-E4 - lower secondary and below	0.95	0.98	1.04	1.08	1.09	1.09
E5 - upper secondary	1.22	1.23	1.24	1.27	1.32	1.38
E6 - short post-secondary	0.76	0.72	0.65	0.57	0.49	0.42
E7 - bachelor	0.60	0.61	0.64	0.66	0.67	0.68
E8 - master and higher	0.83	0.79	0.74	0.71	0.70	0.70
Mean years of schooling (male minus female)	-0.15	-0.26	-0.42	-0.52	-0.59	-0.65
Women age 20-39: highest educational attainment (columns sum to 100%)						
E1-E4 - lower secondary and below	19%	14%	7%	4%	2%	1%
E5 - upper secondary	45%	45%	48%	46%	42%	38%
E6 - short post-secondary	1%	2%	2%	2%	3%	3%
E7 - bachelor	17%	19%	23%	26%	28%	31%
E8 - master and higher	18%	19%	19%	22%	25%	27%
Mean years of schooling (in years)	12.12	12.73	13.38	13.78	14.14	14.37
Age gap among women: highest educational attainment (ratio 35-44/50-64)						
E1-E4 - lower secondary and below	0.94	1.01	0.64	0.43	0.36	0.34
E5 - upper secondary	0.83	0.80	1.01	1.08	0.95	0.87
E6 - short post-secondary	0.49	0.71	1.69	1.44	1.20	1.19
E7 - bachelor	1.42	1.64	1.35	1.16	1.20	1.19
E8 - master and higher	1.35	1.18	1.02	1.12	1.20	1.19
Mean years of schooling (35-44 minus 50-64)	0.73	1.19	1.52	1.73	1.08	0.95

Population size by educational attainment according to three scenarios: SSP2/GET, SSP3/CER and SSP1/SDG

2015-2060 (SSP2/GET)

2015-2060 (SSP3/CER)

2015-2060 (SSP1/SDG)
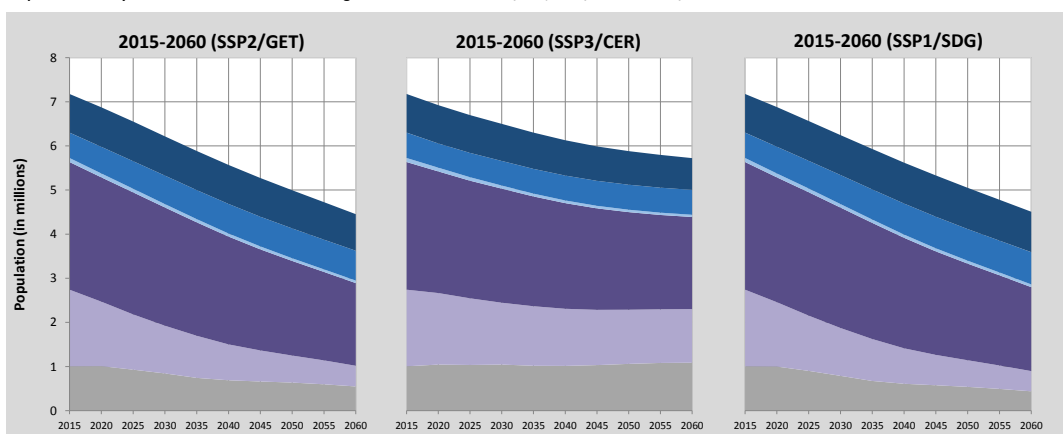
Colour legend as in pyramids above
Education scenarios
SSP2/GET : Global Education Trend Scenario (Medium assumption)
SSP3/CER : Constant Enrollment Rates Scenario (assumption of no future improvements)
SSP1/SDG : Sustainable Development Goal Scenario (universal primary and secondary education by 2030)

Bulgaria (Continued)

Alternative scenarios to 2100

Projection results by scenario (SSP1-SSP3)

	2015	2020	2030	2050	2060	2075	2100
Population (in millions)							
SSP1 - Rapid Development	7.18	6.88	6.25	5.05	4.51	3.72	2.77
SSP2 - CEPAM Zero Migration	7.18	6.97	6.53	5.69	5.32	4.77	4.24
SSP2 - CEPAM Medium	7.18	6.88	6.22	5.00	4.45	3.68	2.94
SSP2 - CEPAM Double Migration	7.18	6.78	5.92	4.37	3.71	2.82	2.05
SSP3 - Stalled Development	7.18	6.92	6.50	5.88	5.72	5.64	6.11
Proportion age 65+							
SSP1 - Rapid Development	20.1%	21.9%	25.7%	36.6%	41.5%	44.3%	55.0%
SSP2 - CEPAM Zero Migration	20.1%	21.4%	23.6%	29.8%	32.2%	31.5%	37.1%
SSP2 - CEPAM Medium	20.1%	21.7%	24.7%	32.9%	35.6%	34.0%	40.2%
SSP2 - CEPAM Double Migration	20.1%	22.0%	25.8%	36.5%	39.5%	36.4%	42.8%
SSP3 - Stalled Development	20.1%	21.4%	22.7%	25.0%	24.4%	20.0%	20.5%
Proportion below age 20							
SSP1 - Rapid Development	18.3%	19.0%	17.8%	14.5%	13.7%	11.9%	9.9%
SSP2 - CEPAM Zero Migration	18.3%	19.3%	19.1%	17.9%	17.8%	17.2%	16.0%
SSP2 - CEPAM Medium	18.3%	19.2%	18.7%	17.1%	17.0%	16.4%	15.1%
SSP2 - CEPAM Double Migration	18.3%	19.2%	18.3%	16.2%	16.2%	15.5%	14.3%
SSP3 - Stalled Development	18.3%	19.6%	21.1%	23.7%	25.2%	26.4%	26.7%
Proportion of women age 20-39 with post-secondary education							
SSP1 - Rapid Development	29.2%	33.0%	38.3%	51.7%	57.0%	64.8%	74.2%
SSP2 - CEPAM Zero Migration	29.2%	33.0%	37.6%	46.2%	50.2%	55.8%	63.4%
SSP2 - CEPAM Medium	29.2%	32.9%	37.3%	45.9%	49.7%	55.3%	62.8%
SSP2 - CEPAM Double Migration	29.2%	32.8%	37.0%	45.6%	49.1%	54.8%	62.1%
SSP3 - Stalled Development	29.2%	27.4%	25.1%	25.4%	25.3%	25.2%	25.1%
Mean years of schooling, age 25+							
SSP1 - Rapid Development	11.2	11.5	11.9	12.8	13.2	13.8	14.6
SSP2 - CEPAM Zero Migration	11.2	11.5	12.0	12.8	13.2	13.8	14.4
SSP2 - CEPAM Medium	11.2	11.5	11.9	12.7	13.1	13.7	14.3
SSP2 - CEPAM Double Migration	11.2	11.5	11.9	12.6	13.0	13.6	14.2
SSP3 - Stalled Development	11.2	11.4	11.7	12.1	12.2	12.3	12.3

Demographic assumptions underlying SSPs

	2015-2020	2020-2025	2030-2035	2050-2055	2060-2065	2075-2080	2095-2100
Total fertility rate							
SSP1 - Rapid Development	1.49	1.42	1.42	1.40	1.41	1.42	1.44
SSP2 - CEPAM Zero Migration	1.54	1.52	1.60	1.61	1.61	1.63	1.65
SSP2 - CEPAM Medium	1.54	1.52	1.60	1.61	1.61	1.63	1.65
SSP2 - CEPAM Double Migration	1.54	1.52	1.60	1.61	1.61	1.63	1.65
SSP3 - Stalled Development	1.68	1.85	2.10	2.19	2.20	2.24	2.29
Life expectancy at birth for females (in years)							
SSP1 - Rapid Development	78.9	80.5	83.6	89.8	92.8	97.4	102.2
SSP2 - CEPAM Zero Migration	78.4	79.5	81.6	85.8	87.9	91.0	95.1
SSP2 - CEPAM Medium	78.4	79.5	81.6	85.8	87.8	91.0	95.1
SSP2 - CEPAM Double Migration	78.4	79.4	81.6	85.7	87.8	91.0	95.1
SSP3 - Stalled Development	77.9	78.4	79.5	81.6	82.7	84.2	86.3
Migration – net flow over five years (in thousands)							
SSP1 - Rapid Development	-93.2	-88.6	-78.8	-60.5	-52.3	-41.1	-31.2
SSP2 - CEPAM Zero Migration	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSP2 - CEPAM Medium	-93.0	-88.1	-77.4	-58.1	-49.5	-38.4	-30.6
SSP2 - CEPAM Double Migration	-186.0	-173.2	-145.8	-97.7	-76.9	-51.6	-35.5
SSP3 - Stalled Development	-61.9	-29.5	-0.1	0.0	0.0	0.0	0.0

Ageing indicators by scenario

	2015	2020	2030	2050	2060	2075	2095
Median age							
SSP1 - Rapid Development	43.5	45.0	48.8	55.6	56.7	60.9	68.1
SSP2 - CEPAM Zero Migration	43.5	44.5	46.9	48.9	49.5	50.9	53.2
SSP2 - CEPAM Medium	43.5	44.9	48.1	51.5	51.6	53.1	55.7
SSP2 - CEPAM Double Migration	43.5	45.2	49.4	55.3	53.9	55.4	57.8
SSP3 - Stalled Development	43.5	44.5	46.1	42.7	40.9	38.7	38.7
Proportion with less than 15 years of remaining life expectancy (RLE)							
SSP1 - Rapid Development	14.4%	14.5%	15.1%	17.5%	20.1%	20.9%	18.6%
SSP2 - CEPAM Zero Migration	14.9%	15.2%	15.6%	16.2%	17.5%	16.4%	15.8%
SSP2 - CEPAM Medium	14.9%	15.4%	16.3%	18.1%	20.2%	18.4%	17.9%
SSP2 - CEPAM Double Migration	14.9%	15.6%	17.1%	20.4%	23.4%	20.6%	19.9%
SSP3 - Stalled Development	15.3%	16.2%	16.8%	16.4%	15.9%	11.7%	10.9%

Population

Mean years of schooling, age 25+

Proportion age 65+

Proportion of women age 20-39 with post-secondary education

Ageing in CEPAM Medium Scenario (SSP2)
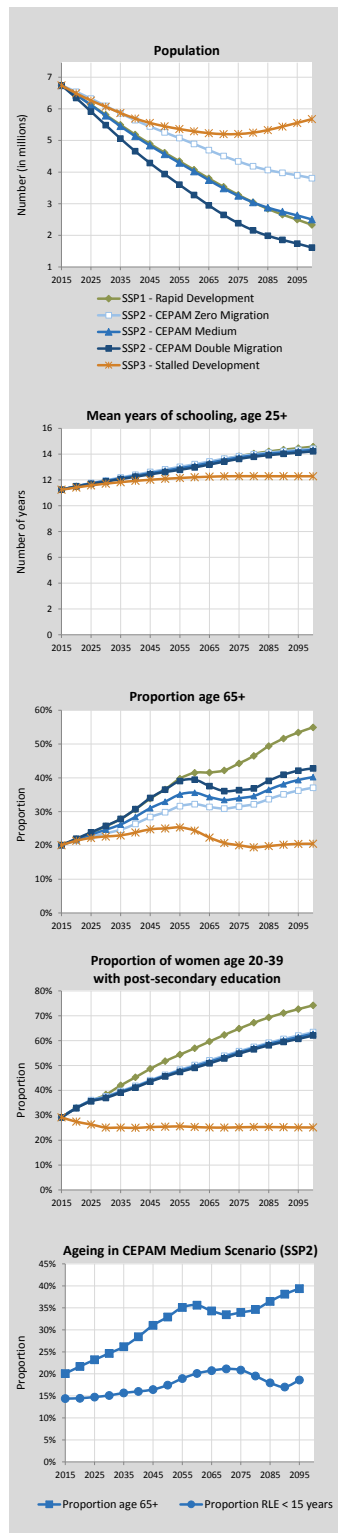
Bulgaria (Continued)

Labour force projections to 2060

Labour force indicators						
	2015	2020	2030	2040	2050	2060

Labour force size, by participation and migration scenario (in millions)

	2015	2020	2030	2040	2050	2060
Constant (CEPAM Zero Migration)	3.32	3.18	2.90	2.63	2.37	2.19
Constant (CEPAM Medium)	3.32	3.12	2.72	2.33	1.98	1.74
Constant (CEPAM Double Migration)	3.32	3.06	2.54	2.06	1.63	1.36
Swedish (CEPAM Zero Migration)	3.32	3.26	3.12	2.98	2.79	2.65
Swedish (CEPAM Medium)	3.32	3.20	2.93	2.66	2.35	2.12
Swedish (CEPAM Double Migration)	3.32	3.14	2.75	2.36	1.95	1.66
Equalization (CEPAM Zero Migration)	3.32	3.20	2.95	2.71	2.47	2.29
Equalization (CEPAM Medium)	3.32	3.14	2.77	2.41	2.07	1.82
Equalization (CEPAM Double Migration)	3.32	3.08	2.59	2.13	1.71	1.42
Constant (CEPAM Medium-low fertility)	3.32	3.12	2.72	2.32	1.90	1.58
Swedish (CEPAM Medium-low fertility)	3.32	3.20	2.93	2.63	2.25	1.91
Equalization (CEPAM Medium-low fertility)	3.32	3.14	2.77	2.40	1.99	1.65

Labour force participation rates, age 15+, by participation scenario (CEPAM Medium)

	2015	2020	2030	2040	2050	2060
TOTAL (Constant)	53.8%	53.2%	50.5%	47.8%	45.3%	44.5%
TOTAL (Swedish)	53.8%	54.5%	54.6%	54.4%	53.8%	54.2%
TOTAL (Equalization)	53.8%	53.6%	51.5%	49.4%	47.5%	46.6%
MALE (Constant)	59.8%	59.1%	56.0%	53.1%	50.5%	49.2%
MALE (Swedish)	59.8%	60.4%	60.1%	59.7%	58.8%	59.0%
MALE (Equalization)	59.8%	59.1%	56.0%	53.1%	50.5%	49.2%
FEMALE (Constant)	48.2%	47.7%	45.4%	42.8%	40.5%	40.0%
FEMALE (Swedish)	48.2%	49.1%	49.5%	49.6%	49.1%	49.6%
FEMALE (Equalization)	48.2%	48.4%	47.3%	46.0%	44.6%	44.2%

Labour force (15+) by highest level of educational attainment. Columns sum to 100%.
(CEPAM Medium; Constant participation)

	2015	2020	2030	2040	2050	2060
TOTAL E1-E4 - lower secondary and below	14.6%	13.2%	11.1%	8.2%	5.1%	3.2%
TOTAL E5 - upper secondary	52.4%	51.7%	50.3%	49.5%	48.7%	47.0%
TOTAL E6 - short post-secondary	1.4%	1.4%	1.3%	1.3%	1.5%	1.6%
TOTAL E7 - bachelor	11.9%	13.1%	15.7%	18.1%	19.8%	21.4%
TOTAL E8 - master and higher	19.6%	20.6%	21.7%	22.9%	24.9%	26.8%
MALE E1-E4 - lower secondary and below	16.5%	15.0%	12.7%	9.7%	6.3%	4.1%
MALE E5 - upper secondary	57.7%	57.6%	57.0%	56.7%	56.4%	55.7%
MALE E6 - short post-secondary	1.3%	1.2%	1.0%	0.8%	0.8%	0.9%
MALE E7 - bachelor	8.7%	9.8%	12.0%	14.2%	15.8%	17.1%
MALE E8 - master and higher	15.9%	16.5%	17.3%	18.5%	20.6%	22.2%
FEMALE E1-E4 - lower secondary and below	12.3%	11.2%	9.2%	6.4%	3.7%	2.1%
FEMALE E5 - upper secondary	46.4%	45.0%	42.6%	41.2%	39.5%	36.9%
FEMALE E6 - short post-secondary	1.6%	1.6%	1.7%	1.9%	2.2%	2.4%
FEMALE E7 - bachelor	15.7%	16.9%	19.8%	22.6%	24.5%	26.4%
FEMALE E8 - master and higher	24.0%	25.4%	26.7%	27.8%	30.1%	32.2%

Labour force size
(CEPAM Medium)

Labour force participation rates
Population 15+ (CEPAM Medium)

Labour force dependency ratio
Inactive population / Active population (CEPAM Medium)

Labour force size by educational attainment according to three migration scenarios, 2015-2060
(Labour force participation = Constant scenario)