

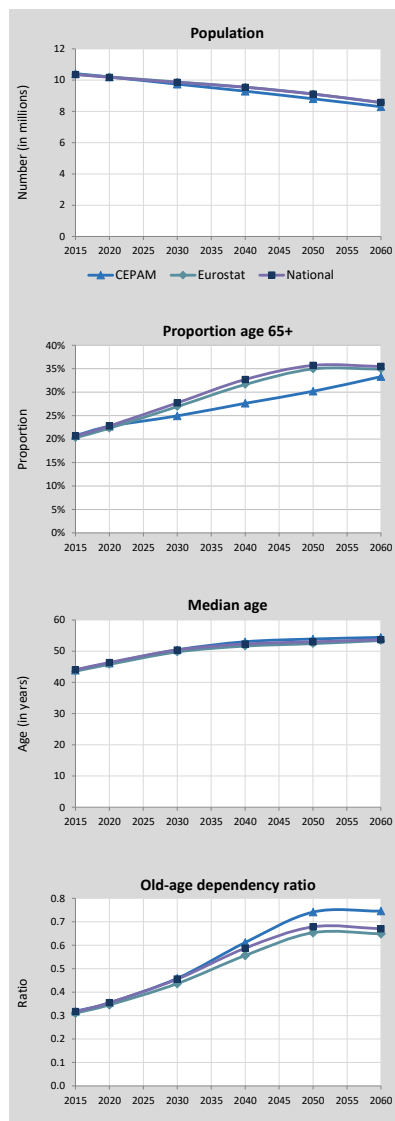
Portugal

Detailed Human Capital projections to 2060

Comparison of CEPAM projections with other sources

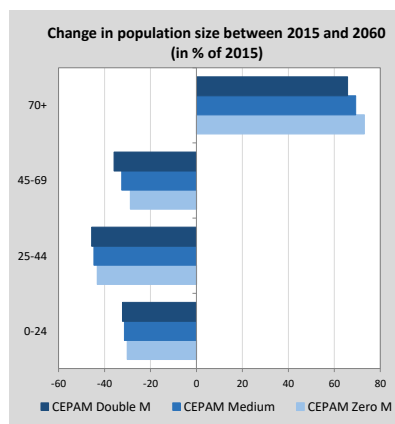
Demographic indicators - CEPAM Medium Scenario (SSP2), Eurostat and national projections							
		2015	2020	2030	2040	2050	2060
Population (in millions)	CEPAM	10.42	10.20	9.74	9.29	8.81	8.30
	Eurostat	10.37	10.21	9.88	9.55	9.12	8.55
	National	10.36	10.18	9.86	9.55	9.11	8.58
Proportion age 65+	CEPAM	20.7%	22.7%	24.9%	27.6%	30.2%	33.3%
	Eurostat	20.3%	22.3%	26.9%	31.6%	35.0%	34.9%
	National	20.7%	22.8%	27.7%	32.7%	35.7%	35.5%
Proportion below age 20	CEPAM	19.3%	18.3%	16.6%	16.4%	16.6%	16.6%
	Eurostat	19.7%	18.4%	15.9%	15.4%	15.7%	15.5%
	National	19.5%	18.2%	16.0%	15.6%	15.9%	15.9%
Median age	CEPAM	43.9	46.2	50.4	53.0	53.9	54.4
	Eurostat	43.6	45.8	49.8	51.6	52.4	53.4
	National	44.0	46.4	50.4	52.3	53.0	53.7
Old-age dependency ratio (65+/15-64)	CEPAM	0.32	0.35	0.46	0.61	0.74	0.75
	Eurostat	0.31	0.35	0.44	0.56	0.65	0.65
	National	0.32	0.35	0.46	0.59	0.68	0.67
Young-age dependency ratio (0-14/15-64)	CEPAM	0.22	0.21	0.20	0.22	0.24	0.24
	Eurostat	0.22	0.20	0.18	0.20	0.22	0.21
	National	0.22	0.20	0.19	0.21	0.22	0.22
Parent support ratio (85+/50-64)	CEPAM	0.13	0.15	0.18	0.30	0.50	0.67
	Eurostat	0.12	0.15	0.18	0.27	0.41	0.48
	National	0.13	0.15	0.18	0.28	0.42	0.50

Demographic assumptions underlying projections							
		2010-2015	2015-2020	2025-2030	2035-2040	2045-2050	2055-2060
Total fertility rate	CEPAM	1.35	1.40	1.46	1.58	1.66	1.70
	Eurostat	1.29	1.29	1.32	1.39	1.45	1.51
	National	1.25	1.29	1.32	1.39	1.46	1.53
Life expectancy at birth (in years)							
Male	CEPAM	78.6	79.6	80.6	82.7	84.8	86.9
	Eurostat	78.5	79.3	80.1	81.6	83.0	84.4
	National	78.1	79.0	79.8	81.3	82.7	83.9
Female	CEPAM	84.3	85.3	86.3	88.3	90.4	92.4
	Eurostat	84.6	85.2	85.8	87.0	88.2	89.2
	National	84.1	85.0	85.8	87.2	88.5	89.6
Five-year net migration flow (in thousands)	CEPAM	-73.8	-59.8	-46.2	-20.8	2.4	23.2
	Eurostat	-25.2	26.6	54.4	89.4	83.7	74.3
	National	-29.1	26.9	60.8	97.5	97.5	97.5



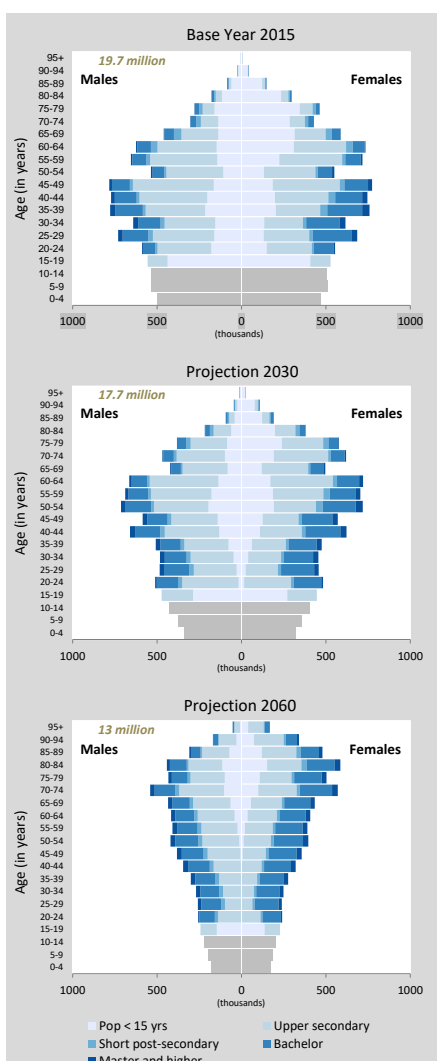
Changes in population size and structure according to CEPAM scenarios (impact of migration)

Population size according to CEPAM projections to 2060							
		2015	2020	2030	2040	2050	2060
Population (in millions)	Zero M	10.42	10.28	9.95	9.57	9.11	8.57
	Medium	10.42	10.20	9.74	9.29	8.81	8.30
	Double M	10.42	10.13	9.55	9.03	8.54	8.08
Population 0-24 (in millions)	Zero M	2.56	2.44	2.16	2.01	1.91	1.79
	Medium	2.56	2.41	2.10	1.93	1.84	1.76
	Double M	2.56	2.39	2.04	1.86	1.79	1.74
Population 25-44 (in millions)	Zero M	2.83	2.54	2.18	2.00	1.75	1.61
	Medium	2.83	2.50	2.07	1.90	1.67	1.57
	Double M	2.83	2.45	1.97	1.81	1.62	1.54
Population 45-69 (in millions)	Zero M	3.48	3.61	3.62	3.22	2.75	2.48
	Medium	3.48	3.60	3.58	3.12	2.60	2.34
	Double M	3.48	3.59	3.54	3.03	2.47	2.23
Population 70+ (in millions)	Zero M	1.55	1.69	1.99	2.35	2.71	2.69
	Medium	1.55	1.69	1.99	2.35	2.69	2.63
	Double M	1.55	1.69	1.99	2.34	2.67	2.58



Romania (Continued)

Pyramids by education, CEPAM Medium

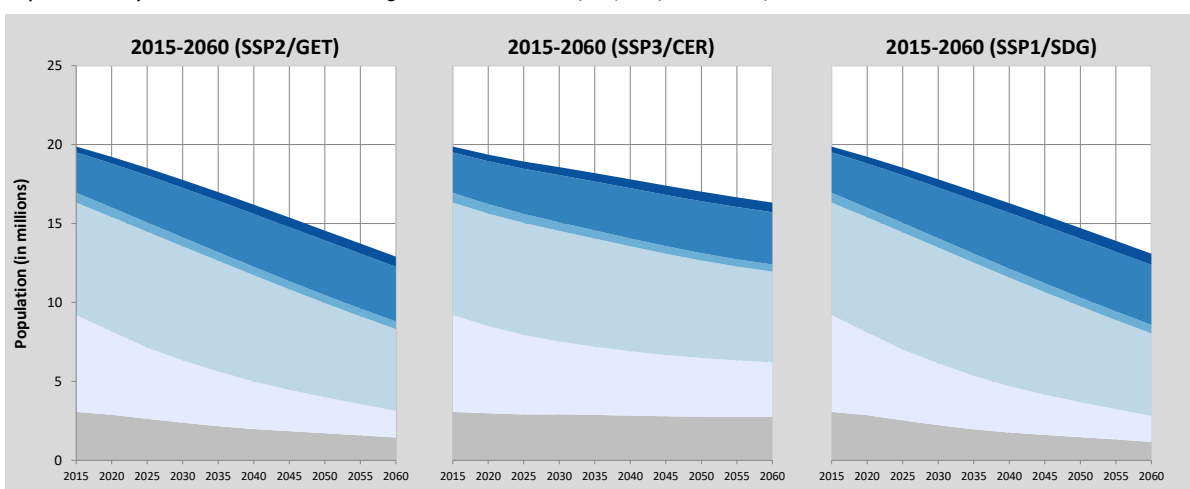


Detailed Human Capital projections to 2060

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	33.9%	30.6%	24.9%	20.8%	17.9%	15.6%
E5 - upper secondary	43.3%	44.6%	46.4%	46.5%	45.4%	43.9%
E6 - short post-secondary	4.0%	4.0%	3.9%	3.9%	4.0%	4.2%
E7 - bachelor	16.3%	17.9%	21.1%	24.3%	27.5%	30.4%
E8 - master and higher	2.4%	2.9%	3.6%	4.4%	5.2%	5.8%
Mean years of schooling (in years)	11.04	11.34	11.84	12.22	12.55	12.85
Age gap: highest educational attainment (ratio 35-44/50-64)						
E1-E4 - lower secondary and below	0.97	1.08	0.72	0.56	0.62	0.81
E5 - upper secondary	0.80	0.72	0.94	1.10	1.01	0.95
E6 - short post-secondary	1.00	1.30	1.04	1.11	1.17	1.12
E7 - bachelor	1.71	1.73	1.40	1.18	1.16	1.11
E8 - master and higher	2.99	2.39	1.48	1.18	1.16	1.12
Mean years of schooling (35-44 minus 50-64)	0.39	0.30	0.73	0.89	0.69	0.50
Gender gap (population age 25+): highest educational attainment (% males - %females)						
E1-E4 - lower secondary and below	-10.12	-8.42	-4.84	-2.01	-0.36	0.26
E5 - upper secondary	12.05	11.48	10.23	9.52	9.67	10.45
E6 - short post-secondary	0.12	-0.01	-0.20	-0.16	0.06	0.42
E7 - bachelor	-1.75	-2.70	-4.69	-6.69	-8.56	-10.22
E8 - master and higher	-0.31	-0.36	-0.50	-0.66	-0.81	-0.90
Mean years of schooling (male minus female)	0.60	0.40	0.10	-0.20	-0.30	-0.40
Women age 20-39: highest educational attainment (columns sum to 100%)						
E1-E4 - lower secondary and below	24%	19%	13%	10%	10%	10%
E5 - upper secondary	39%	41%	44%	43%	40%	38%
E6 - short post-secondary	4%	3%	3%	4%	4%	4%
E7 - bachelor	29%	31%	35%	38%	40%	42%
E8 - master and higher	4%	5%	5%	5%	6%	6%
Mean years of schooling (in years)	12.09	12.50	13.14	13.51	13.79	14.00
Age gap among women: highest educational attainment (ratio 35-44/50-64)						
E1-E4 - lower secondary and below	0.81	0.94	0.65	0.53	0.60	0.80
E5 - upper secondary	0.78	0.68	0.94	1.11	0.98	0.91
E6 - short post-secondary	1.53	1.53	0.68	0.89	1.16	1.12
E7 - bachelor	1.96	1.88	1.53	1.21	1.16	1.12
E8 - master and higher	3.60	2.44	1.37	1.14	1.16	1.12
Mean years of schooling (35-44 minus 50-64)	0.81	0.58	0.93	1.01	0.79	0.58

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

Portugal (Continued)

Alternative scenarios to 2100

Projection results by scenario (SSP1-SSP3)

	2015	2020	2030	2050	2060	2075	2100
Population (in millions)							
SSP1 - Rapid Development	10.42	10.19	9.68	8.62	8.00	7.05	5.95
SSP2 - CEPAM Zero Migration	10.42	10.28	9.95	9.11	8.57	7.78	6.94
SSP2 - CEPAM Medium	10.42	10.20	9.74	8.81	8.30	7.67	7.31
SSP2 - CEPAM Double Migration	10.42	10.13	9.55	8.54	8.08	7.61	7.63
SSP3 - Stalled Development	10.42	10.25	9.95	9.31	8.97	8.72	9.14

Proportion age 65+

SSP1 - Rapid Development	20.7%	22.9%	28.7%	42.3%	45.2%	49.9%	54.6%
SSP2 - CEPAM Zero Migration	20.7%	22.6%	27.1%	36.5%	37.4%	38.5%	39.8%
SSP2 - CEPAM Medium	20.7%	22.7%	27.6%	37.3%	37.5%	37.1%	37.0%
SSP2 - CEPAM Double Migration	20.7%	22.9%	28.1%	38.1%	37.4%	35.7%	35.0%
SSP3 - Stalled Development	20.7%	22.5%	26.2%	31.9%	30.0%	27.0%	24.5%

Proportion below age 20

SSP1 - Rapid Development	19.3%	18.1%	15.1%	12.6%	11.8%	11.0%	10.1%
SSP2 - CEPAM Zero Migration	19.3%	18.4%	16.7%	16.6%	16.4%	16.7%	16.2%
SSP2 - CEPAM Medium	19.3%	18.3%	16.6%	16.6%	16.6%	17.4%	17.3%
SSP2 - CEPAM Double Migration	19.3%	18.3%	16.5%	16.6%	16.9%	18.0%	18.1%
SSP3 - Stalled Development	19.3%	18.7%	18.5%	21.2%	22.3%	24.5%	25.2%

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

SSP1 - Rapid Development	36.6%	40.7%	49.6%	66.6%	72.6%	79.3%	83.0%
SSP2 - CEPAM Zero Migration	36.6%	40.9%	49.0%	62.3%	67.5%	73.9%	80.3%
SSP2 - CEPAM Medium	36.6%	40.1%	47.5%	59.6%	64.4%	70.6%	77.2%
SSP2 - CEPAM Double Migration	36.6%	39.4%	46.1%	57.1%	61.7%	68.0%	75.2%
SSP3 - Stalled Development	36.6%	37.4%	38.6%	38.1%	38.2%	38.3%	38.3%

Mean years of schooling, age 25+

SSP1 - Rapid Development	7.8	8.3	9.4	11.3	12.0	12.9	13.7
SSP2 - CEPAM Zero Migration	7.8	8.4	9.5	11.4	12.1	12.9	13.5
SSP2 - CEPAM Medium	7.8	8.3	9.4	11.2	11.9	12.6	13.3
SSP2 - CEPAM Double Migration	7.8	8.3	9.3	11.0	11.7	12.4	13.1
SSP3 - Stalled Development	7.8	8.3	9.4	11.0	11.5	11.7	11.8

Demographic assumptions underlying SSPs

	2015-2020	2020-2025	2030-2035	2050-2055	2060-2065	2075-2080	2095-2100
Total fertility rate							
SSP1 - Rapid Development	1.25	1.21	1.18	1.26	1.28	1.28	1.29
SSP2 - CEPAM Zero Migration	1.34	1.40	1.52	1.69	1.71	1.71	1.71
SSP2 - CEPAM Medium	1.35	1.40	1.52	1.69	1.71	1.71	1.71
SSP2 - CEPAM Double Migration	1.35	1.40	1.52	1.69	1.71	1.71	1.71
SSP3 - Stalled Development	1.46	1.64	1.94	2.24	2.27	2.28	2.29

Life expectancy at birth for females (in years)

SSP1 - Rapid Development	84.8	86.3	89.3	95.4	98.4	102.9	109.0
SSP2 - CEPAM Zero Migration	84.3	85.3	87.3	91.4	93.5	96.5	100.6
SSP2 - CEPAM Medium	84.3	85.3	87.3	91.4	93.4	96.4	100.5
SSP2 - CEPAM Double Migration	84.3	85.3	87.3	91.3	93.4	96.3	100.4
SSP3 - Stalled Development	83.8	84.3	85.3	87.3	88.4	89.8	91.7

Migration – net flow over five years (in thousands)

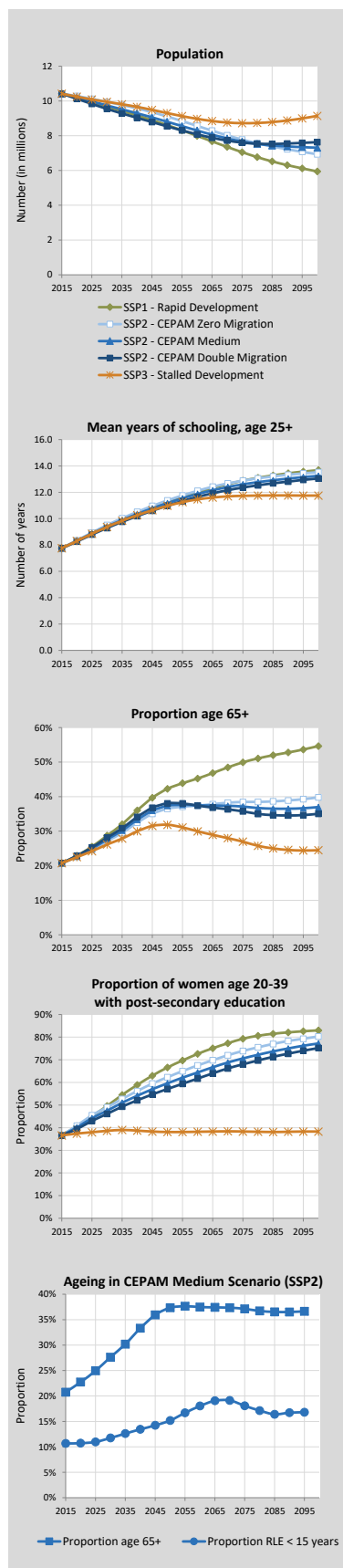
SSP1 - Rapid Development	-74.0	-61.2	-38.9	-3.4	10.3	24.1	24.7
SSP2 - CEPAM Zero Migration	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSP2 - CEPAM Medium	-73.7	-59.9	-33.3	12.2	30.5	46.7	47.9
SSP2 - CEPAM Double Migration	-147.6	-117.3	-60.6	29.9	62.9	86.5	73.8
SSP3 - Stalled Development	-49.0	-19.7	0.0	0.0	0.1	0.1	0.1

Ageing indicators by scenario

	2015	2020	2030	2050	2060	2075	2095
Median age							
SSP1 - Rapid Development	43.9	46.4	51.3	58.6	61.2	65.0	68.6
SSP2 - CEPAM Zero Migration	43.9	46.0	49.9	53.5	54.6	54.3	55.2
SSP2 - CEPAM Medium	43.9	46.2	50.4	53.9	54.4	52.9	52.7
SSP2 - CEPAM Double Migration	43.9	46.4	50.9	54.2	54.0	51.5	51.0
SSP3 - Stalled Development	43.9	46.0	49.0	48.6	46.3	42.6	41.1

Proportion with less than 15 years of remaining life expectancy (RLE)

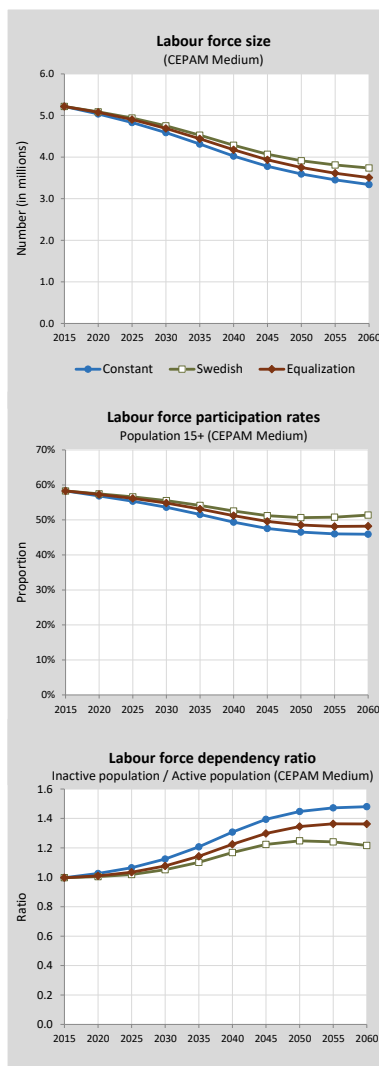
SSP1 - Rapid Development	10.7%	10.7%	11.7%	15.2%	18.0%	18.1%	16.8%
SSP2 - CEPAM Zero Migration	11.1%	11.4%	12.2%	16.0%	18.1%	15.9%	15.5%
SSP2 - CEPAM Medium	11.1%	11.5%	12.5%	16.5%	18.5%	15.3%	14.0%
SSP2 - CEPAM Double Migration	11.1%	11.6%	12.7%	16.9%	18.9%	14.8%	12.7%
SSP3 - Stalled Development	11.4%	12.2%	13.4%	17.1%	17.2%	13.4%	10.8%



Portugal (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)						
Constant (CEPAM Zero Migration)	5.22	5.09	4.73	4.22	3.79	3.49
Constant (CEPAM Medium)	5.22	5.04	4.59	4.03	3.59	3.34
Constant (CEPAM Double Migration)	5.22	4.98	4.46	3.85	3.43	3.23
Swedish (CEPAM Zero Migration)	5.22	5.14	4.89	4.48	4.12	3.90
Swedish (CEPAM Medium)	5.22	5.09	4.75	4.28	3.91	3.74
Swedish (CEPAM Double Migration)	5.22	5.04	4.61	4.10	3.73	3.61
Equalization (CEPAM Zero Migration)	5.22	5.13	4.83	4.37	3.95	3.65
Equalization (CEPAM Medium)	5.22	5.08	4.69	4.18	3.75	3.51
Equalization (CEPAM Double Migration)	5.22	5.02	4.56	4.00	3.58	3.40
Constant (CEPAM Medium-low fertility)	5.22	5.04	4.59	4.00	3.45	3.03
Swedish (CEPAM Medium-low fertility)	5.22	5.09	4.75	4.24	3.73	3.38
Equalization (CEPAM Medium-low fertility)	5.22	5.08	4.69	4.15	3.60	3.19
Labour force participation rates, age 15+, by participation scenario (CEPAM Medium)						
TOTAL (Constant)	58.3%	56.8%	53.6%	49.4%	46.5%	45.9%
TOTAL (Swedish)	58.3%	57.4%	55.5%	52.5%	50.7%	51.4%
TOTAL (Equalization)	58.3%	57.3%	54.8%	51.2%	48.5%	48.2%
MALE (Constant)	63.9%	62.2%	58.9%	54.7%	51.8%	51.1%
MALE (Swedish)	63.9%	62.7%	60.6%	57.6%	55.6%	56.3%
MALE (Equalization)	63.9%	62.2%	58.9%	54.7%	51.8%	51.1%
FEMALE (Constant)	53.4%	52.1%	49.0%	44.7%	42.0%	41.4%
FEMALE (Swedish)	53.4%	52.8%	51.1%	48.1%	46.3%	47.1%
FEMALE (Equalization)	53.4%	53.0%	51.3%	48.1%	45.7%	45.6%
Labour force (15+) by highest level of educational attainment. Columns sum to 100%. (CEPAM Medium; Constant participation)						
TOTAL E1-E4 - lower secondary and below	52.5%	46.5%	34.9%	25.6%	18.2%	12.7%
TOTAL E5 - upper secondary	22.5%	24.8%	28.9%	31.8%	33.6%	33.9%
TOTAL E6 - short post-secondary	19.8%	23.0%	29.6%	34.9%	39.5%	43.9%
TOTAL E7 - bachelor	2.6%	2.7%	3.0%	3.2%	3.6%	4.0%
TOTAL E8 - master and higher	2.6%	2.9%	3.7%	4.4%	5.0%	5.5%
MALE E1-E4 - lower secondary and below	59.0%	53.4%	41.9%	31.7%	23.2%	16.4%
MALE E5 - upper secondary	21.4%	23.8%	28.5%	32.6%	36.0%	37.9%
MALE E6 - short post-secondary	15.4%	18.2%	24.4%	29.8%	34.1%	38.3%
MALE E7 - bachelor	2.1%	2.2%	2.4%	2.5%	2.8%	3.1%
MALE E8 - master and higher	2.2%	2.4%	2.9%	3.4%	3.9%	4.4%
FEMALE E1-E4 - lower secondary and below	45.8%	39.3%	27.6%	19.1%	12.9%	8.8%
FEMALE E5 - upper secondary	23.8%	25.9%	29.3%	31.0%	31.0%	29.6%
FEMALE E6 - short post-secondary	24.4%	28.0%	35.0%	40.5%	45.3%	49.8%
FEMALE E7 - bachelor	3.1%	3.2%	3.6%	4.0%	4.6%	5.0%
FEMALE E8 - master and higher	3.0%	3.5%	4.4%	5.4%	6.1%	6.8%



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

