



# The Global Aging Preparedness Index

*Second Edition*

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World Bank Pensions Core Course

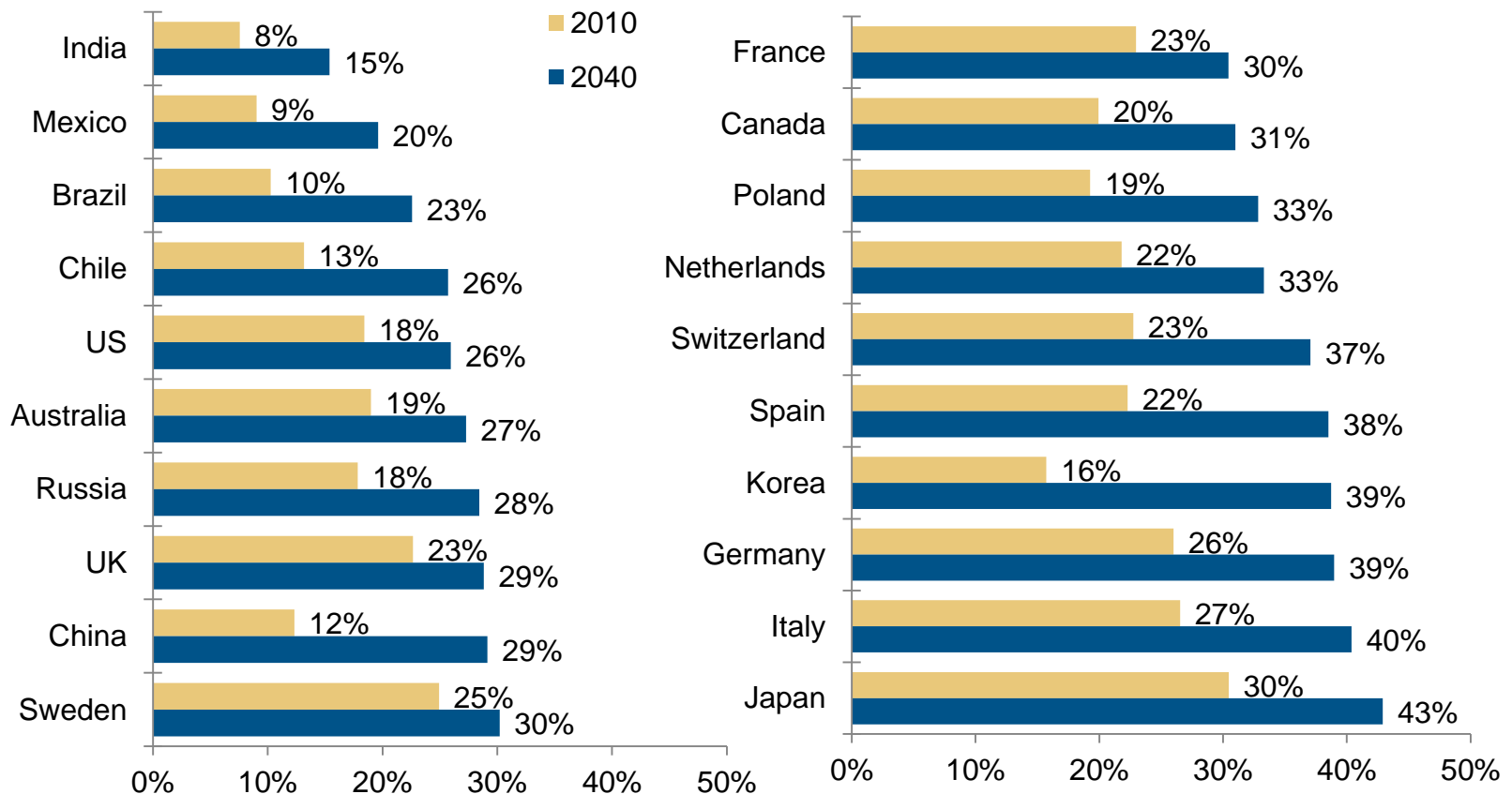
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Washington, DC

[www.GlobalAgingInstitute.org](http://www.GlobalAgingInstitute.org)

# The world stands on the threshold of a stunning demographic transformation called global aging.

**Elderly (Aged 60 and Over), as a Percent of the Population in 2010 and 2040**



# Introducing the GAP Index

- ▣ The GAP Index provides a unique new quantitative assessment of the progress that countries worldwide are making in preparing for the global aging challenge.
- ▣ The GAP Index projections extend through the year 2040 in order to capture the full impact of the demographic transformation now sweeping the world.
- ▣ The GAP Index covers twenty countries, including both developed economies and emerging markets.
- ▣ The GAP Index consists of two subindices—the fiscal sustainability index and the income adequacy index.

## **GAP Index Countries**

**Australia  
Brazil  
Canada  
Chile  
China  
France  
Germany  
India  
Italy  
Japan  
Korea  
Mexico  
Netherlands  
Poland  
Russia  
Spain  
Sweden  
Switzerland  
UK  
US**

# The GAP Index Framework

- ▣ The GAP Index model uses a fixed-scenario actuarial projection methodology with no economic feedbacks.
- ▣ The GAP Index divides the population into two groups: the elderly (persons aged 60 and older) and the nonelderly (persons under age 60).
- ▣ The GAP Index assumes a current policy and current behavior baseline, which allows it to serve as a “stress test” of existing retirement policies.
- ▣ The GAP Index is forward looking: It ranks countries based on where they are heading, rather than where they currently stand.
- ▣ The GAP Index is relative: The performance of countries on each indicator is measured relative to that of other countries. There are no absolute “preparedness” benchmarks for fiscal sustainability or income adequacy.
- ▣ The GAP Index ranks countries on fiscal sustainability and income adequacy by transforming indicator values into indicator index scores, then combining them into category scores and overall index scores and rankings.

# GAP FISCAL SUSTAINABILITY INDEX

## PUBLIC BURDEN CATEGORY

Measures the magnitude of each country's projected public old-age dependency burden

### BENEFIT LEVEL INDICATOR

Total public benefits to the elderly in 2040 as a percent of GDP

### BENEFIT GROWTH INDICATOR

Growth in total public benefits to the elderly from 2010 to 2040 as a percent of GDP

## FISCAL ROOM CATEGORY

Measures each country's ability to accommodate the growth in its public old-age dependency burden by raising taxes, cutting other spending, or borrowing

### TAX ROOM INDICATOR

Total government revenue in 2040 as a percent of GDP, assuming taxes are raised to pay for all growth in public benefits

### BUDGET ROOM INDICATOR

Total public benefits to the elderly in 2040 as a percent of government outlays, assuming cuts in other spending pay for all growth in public benefits

### BORROWING ROOM INDICATOR

Net public debt in 2040 as a percent of GDP, assuming borrowing pays for all growth in public benefits

## BENEFIT DEPENDENCE CATEGORY

Measures how dependent the elderly in each country are on public benefits, and thus how politically difficult it may be to reduce those benefits

### BENEFIT SHARE INDICATOR

Public benefits as a percent of the cash income of the median-income elderly: Average for 2010 to 2040

### BENEFIT CUT INDICATOR

Percent of elderly households that would be pushed into poverty by an immediate 10 percent cut in public benefits

# Public Burden Category

## Benefit Level Indicator

**Total Public Benefits to the Elderly, as a Percent of GDP, 2010–2040**

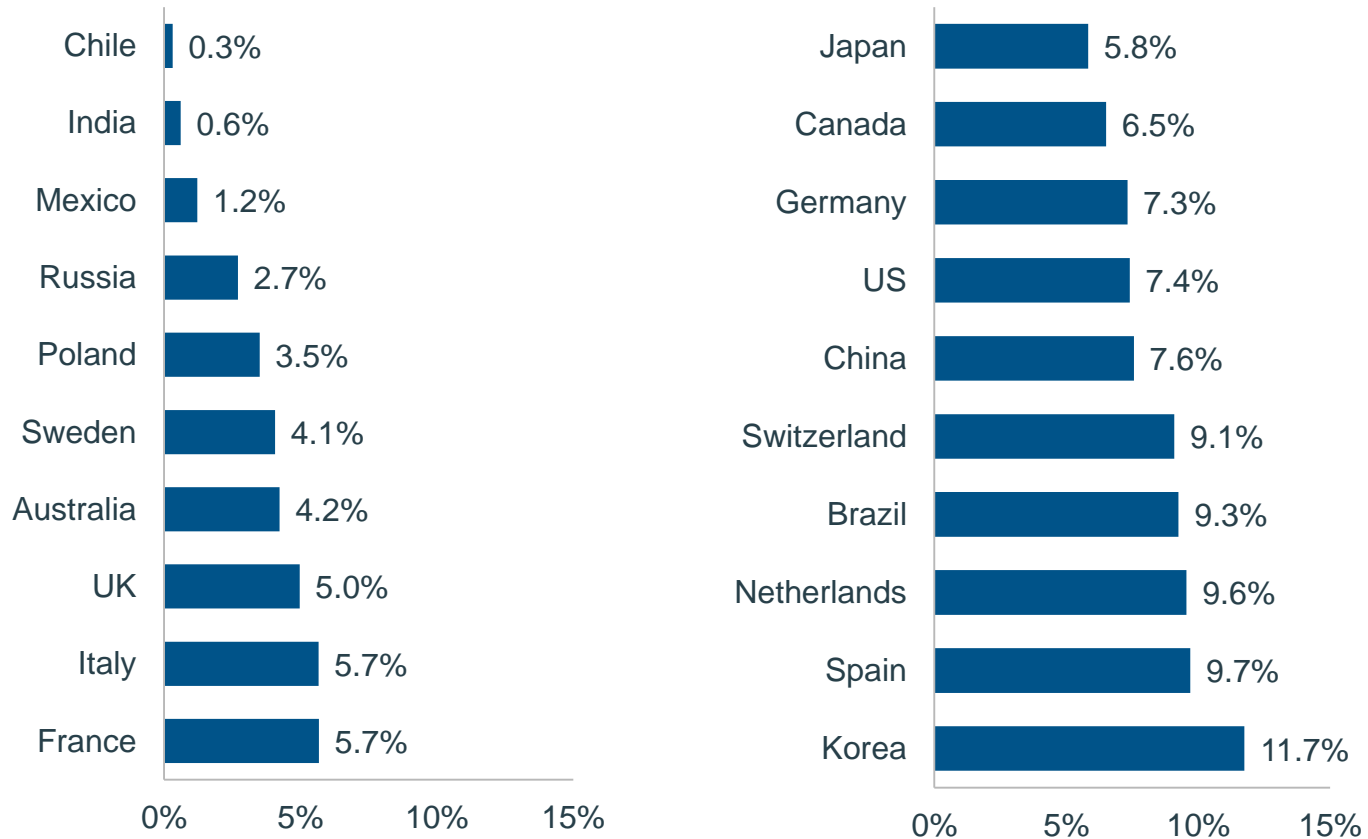
		2010	2020	2030	2040			2010	2020	2030	2040
1	India	1.9	2.4	2.5	2.5	11	UK	13.9	14.6	17.0	18.9
2	Mexico	2.9	3.5	4.1	4.1	12	Brazil	10.0	11.5	14.6	19.3
3	Chile	6.9	6.6	6.7	7.2	13	Sweden	15.2	16.7	18.4	19.3
4	Russia	8.2	9.3	10.1	10.9	14	Switzerland	10.4	12.4	15.9	19.5
5	China	3.4	5.5	8.0	11.0	15	Netherlands	10.2	12.9	17.0	19.8
6	Australia	9.1	10.3	12.0	13.4	16	Japan	15.1	16.6	17.9	20.9
7	Poland	11.7	13.5	14.7	15.2	17	Spain	13.9	16.1	18.9	23.6
8	Canada	9.3	11.8	14.2	15.8	18	Germany	17.0	18.4	21.9	24.3
9	Korea	4.5	7.8	12.2	16.2	19	France	18.6	20.3	22.6	24.3
10	US	11.1	13.6	16.7	18.5	20	Italy	20.0	20.5	22.5	25.7

**Note:** Countries are ranked from best to worst according to the projection results for 2040.

# Public Burden Category

## Benefit Growth Indicator

**Growth in Total Public Benefits to the Elderly from 2010 to 2040  
as a Percent of GDP**



**Note:** Countries are ranked from best to worst.

# Some developed countries have made deep cuts in the future generosity of state retirement provision.

## Public Pension Benefits to the Elderly (Aged 60 & Over) as a Percent of GDP in 2010 and 2040 under Alternative Projections\*

	2010	"Current Deal" in 2040	"Current Law" in 2040	Current-Law % Reduction in 2040
1 Netherlands	4.6%	9.0%	8.6%	-4.7%
2 Sweden	7.5%	10.4%	8.4%	-19.1%
3 US	4.8%	8.2%	6.4%	-21.8%
4 Australia	3.7%	6.2%	4.7%	-24.2%
5 UK	7.5%	10.6%	7.9%	-25.9%
6 Canada	4.0%	8.1%	5.4%	-32.7%
7 France	12.6%	20.4%	13.6%	-33.5%
8 Germany	10.3%	19.9%	12.4%	-37.4%
9 Japan	9.3%	17.4%	10.5%	-39.5%
10 Italy	13.9%	28.0%	15.0%	-46.3%

\*The "current-deal" projection assumes that average retirement ages and replacement rates remain unchanged in the future.

**Note:** Countries are ranked from lowest to highest according to the current-law percent reduction in 2040.

# Fiscal Room Category

## Tax Room Indicator

**Total Government Revenue as a Percent of GDP, Assuming Taxes Are Raised to Pay for All Growth in Public Benefits, 2010–2040\***

	2010	2020	2030	2040		2010	2020	2030	2040
1 India	18.8	19.2	20.2	20.5	11 Japan	32.4	37.3	38.5	41.5
2 Mexico	22.8	20.6	20.9	20.8	12 Canada	37.8	39.0	41.3	42.9
3 Chile	23.5	23.1	22.8	23.1	13 UK	40.1	38.9	41.4	43.4
4 China	21.3	22.9	25.4	28.7	14 Brazil	37.2	36.6	39.5	44.2
5 Russia	34.6	32.6	32.9	33.6	15 Spain	36.6	39.2	41.7	45.6
6 Australia	31.8	35.0	36.2	37.5	16 Germany	43.6	44.7	47.6	49.8
7 Poland	37.6	38.8	40.1	40.4	17 Sweden	52.3	49.1	50.3	51.1
8 Korea	31.4	32.4	36.7	40.6	18 Italy	46.1	48.4	50.0	52.7
9 Switzerland	34.0	33.9	37.2	40.7	19 Netherlands	45.6	46.9	50.7	53.7
10 US	31.2	35.4	38.9	41.1	20 France	49.5	51.6	53.9	55.6

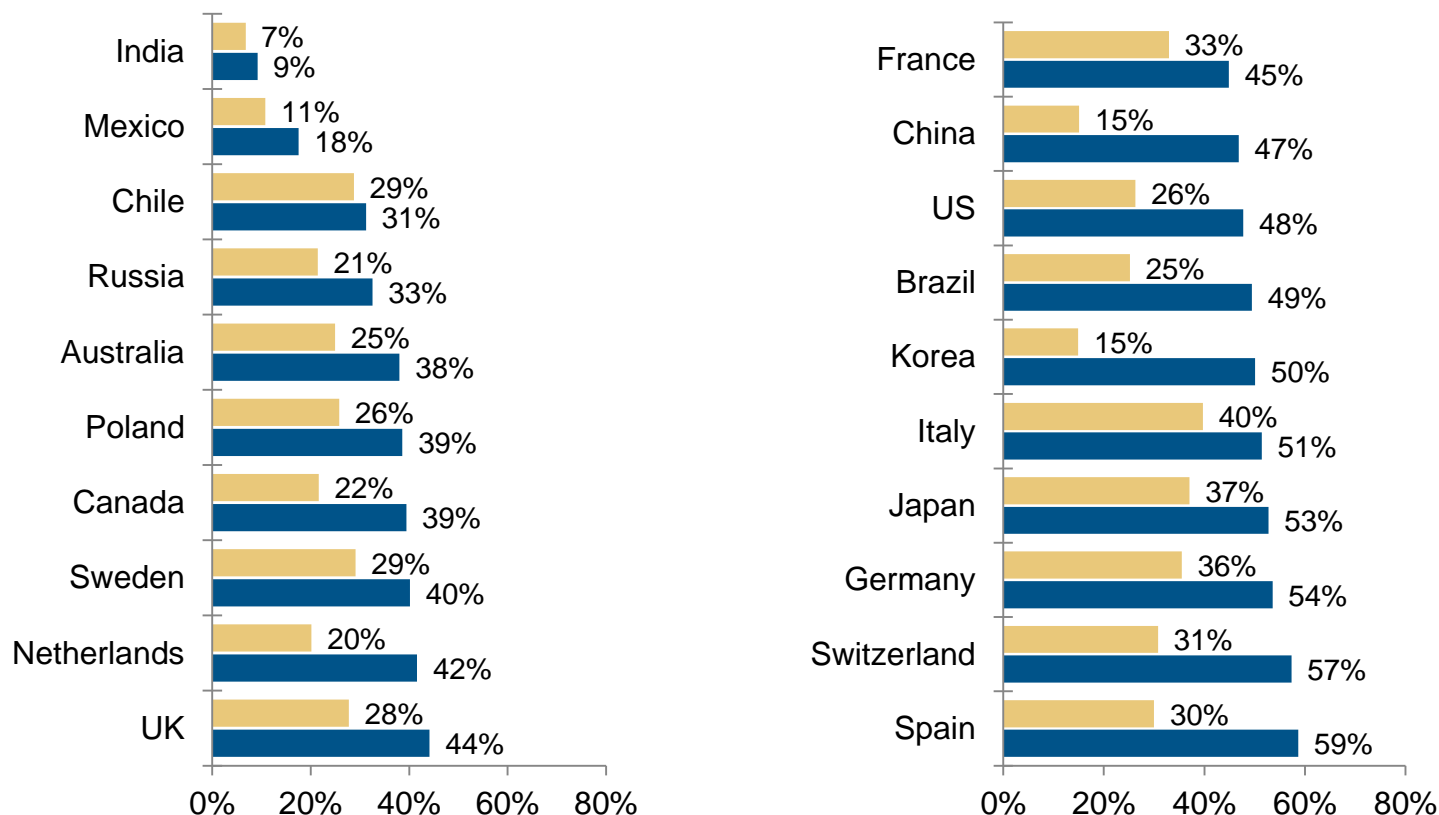
**Note:** Countries are ranked from best to worst according to the projection results for 2040.

\* The projections assume that, beginning in 2019, each country moves to a debt-neutral fiscal balance in its “rest of government” budget.

# Fiscal Room Category

## Budget Room Indicator

**Total Public Benefits to the Elderly as a Percent of Government Outlays in 2010 and 2040, Assuming Cuts in Other Spending Pay for All Growth in Public Benefits\***



**Note:** Countries are ranked from best to worst according to the projection results for 2040.

\* The projections assume that, beginning in 2015, each country moves to a debt-neutral fiscal balance in its “rest of government” budget.

# Fiscal Room Category

## Borrowing Room Indicator

### Net Public Debt as a Percent of GDP, Assuming that Borrowing Pays for All Growth in Public Benefits, 2010-2040\*

		2010	2020	2030	2040			2010	2020	2030	2040
1	Sweden	-18	-22	-26	<b>-19</b>	11	Switzerland	28	19	26	<b>81</b>
2	Chile	-8	-4	-5	<b>-5</b>	12	France	84	78	68	<b>82</b>
3	Australia	12	3	0	<b>11</b>	13	Poland	27	25	47	<b>82</b>
4	Mexico	38	37	33	<b>33</b>	14	UK	83	82	73	<b>91</b>
5	Russia <sup>†</sup>	11	15	24	<b>38</b>	15	Germany	57	50	58	<b>104</b>
6	China <sup>†</sup>	23	8	7	<b>40</b>	16	Italy	103	100	105	<b>140</b>
7	Korea	32	11	16	<b>68</b>	17	Netherlands	33	46	84	<b>176</b>
8	Brazil	35	26	31	<b>74</b>	18	US	88	87	114	<b>177</b>
9	Canada	35	34	44	<b>76</b>	19	Japan	134	165	218	<b>325</b>
10	India <sup>†</sup>	67	64	67	<b>80</b>	20	Spain	72	107	183	<b>331</b>

**Note:** Countries are ranked from best to worst according to the projection results for 2040.

\* The projections assume that, beginning in 2019, government revenues and expenditures other than benefit spending and net interest remain constant as a share of GDP.

<sup>†</sup> Data for Russia, China, and India refer to gross debt.

# Benefit Dependence Category

## Benefit Share Indicator

### Public Benefits as a Percent of the Cash Income of the Median-Income Elderly, 2010-2040\*

		2010	2020	2030	2040	Average 2007-40			2010	2020	2030	2040	Average 2007-40
1	India	25	25	22	19	23	11	Japan	60	57	54	54	56
2	Mexico	32	30	28	23	29	12	Sweden	63	62	59	58	60
3	Switzerland	33	32	30	32	32	13	UK	66	62	61	62	62
4	Korea	26	30	35	40	33	14	Russia	69	66	63	55	63
5	US	39	35	36	37	37	15	Germany	73	66	60	60	64
6	Chile	55	39	30	26	37	16	Brazil	75	65	62	63	65
7	China	34	37	37	41	37	17	France	73	71	70	71	71
8	Canada	39	39	39	39	39	18	Italy	78	74	70	68	72
9	Netherlands	50	50	50	51	50	19	Spain	79	75	71	71	74
10	Australia	64	56	50	46	54	20	Poland	94	89	85	79	87

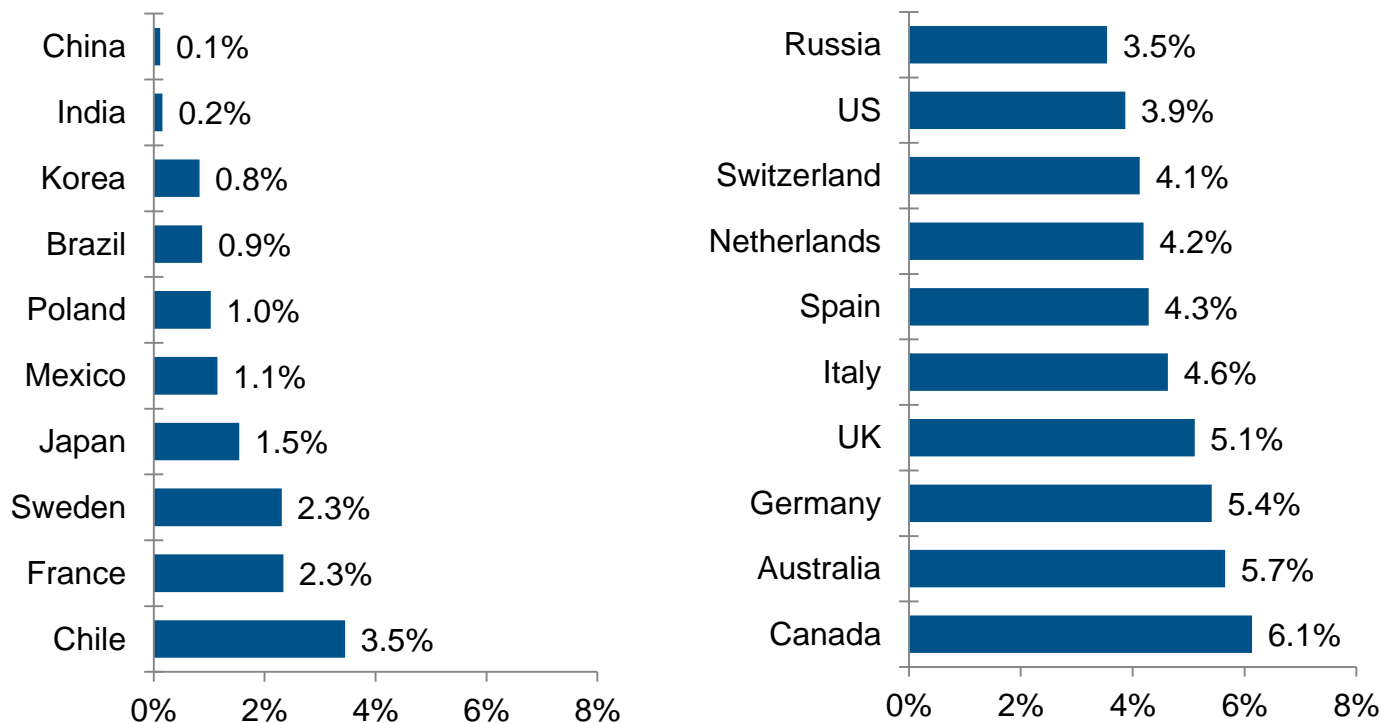
Note: Countries are ranked from best to worst according to the projected averages for 2010 to 2040.

\* Data refer to the third quintile of the elderly income distribution.

# Benefit Dependence Category

## Benefit Cut Indicator

**Percent of Elderly Households That Would Be Pushed into Poverty by an Immediate 10 Percent Cut in Public Benefits\***



**Note:** Countries are ranked from best to worst.

\* Data refer to 2010 or the most recent available year. Poor households are households with incomes beneath 50 percent of the median income for all households.

# GAP INCOME ADEQUACY INDEX

## TOTAL INCOME CATEGORY

Measures the overall level of and trend in the income of the elderly relative to the nonelderly in each country

### TOTAL INCOME LEVEL INDICATOR

Per capita ratio of average after-tax elderly to nonelderly total income in 2040

### TOTAL INCOME TREND INDICATOR

Percentage change in the per capita ratio of average after-tax elderly to nonelderly total income from 2010 to 2040

## INCOME VULNERABILITY CATEGORY

Measures income adequacy for “middle -income” elders and the extent of elderly poverty in each country

### MEDIAN INCOME LEVEL INDICATOR

Per capita ratio of median after-tax elderly to nonelderly cash income in 2040

### MEDIAN INCOME TREND INDICATOR

Percentage change in the per capita ratio of median after-tax elderly to nonelderly cash income from 2010 to 2040

### POVERTY LEVEL INDICATOR

Percent of the elderly with incomes beneath 50 percent of the median income for all persons in 2010 or the most recent available year

## FAMILY SUPPORT CATEGORY

Measures the strength of family support networks in each country

### FAMILY TIES INDICATOR

Percent of the elderly living in households with their adult children in 2010 or the most recent available year

### FAMILY SIZE INDICATOR

Change in the average number of surviving children of the elderly from 2010 to 2040

# Total Income Category

## Total Income Level Indicator

### Per Capita Ratio of Average After-Tax Elderly to Nonelderly Total Income, 2010-2040\*

		2010	2020	2030	2040			2010	2020	2030	2040
1	US	1.58	1.71	1.75	1.78	11	Sweden	1.12	1.09	1.12	1.12
2	Brazil	1.41	1.35	1.37	1.48	12	Japan	1.03	1.01	0.98	1.02
3	Germany	1.30	1.33	1.44	1.44	13	Switzerland	1.05	1.01	1.02	1.01
4	Netherlands	1.19	1.24	1.33	1.41	14	Spain	0.95	1.02	0.99	0.99
5	Australia	1.22	1.34	1.38	1.40	15	Mexico	1.06	1.06	1.03	0.95
6	France	1.28	1.24	1.24	1.25	16	Korea	0.92	0.88	0.89	0.89
7	Canada	1.26	1.29	1.26	1.24	17	India	0.76	0.79	0.78	0.75
8	UK	1.20	1.16	1.22	1.24	18	Russia	0.83	0.77	0.73	0.74
9	Italy	1.25	1.21	1.19	1.20	19	China	0.57	0.61	0.62	0.65
10	Chile	1.23	1.26	1.22	1.17	20	Poland	0.72	0.63	0.64	0.58

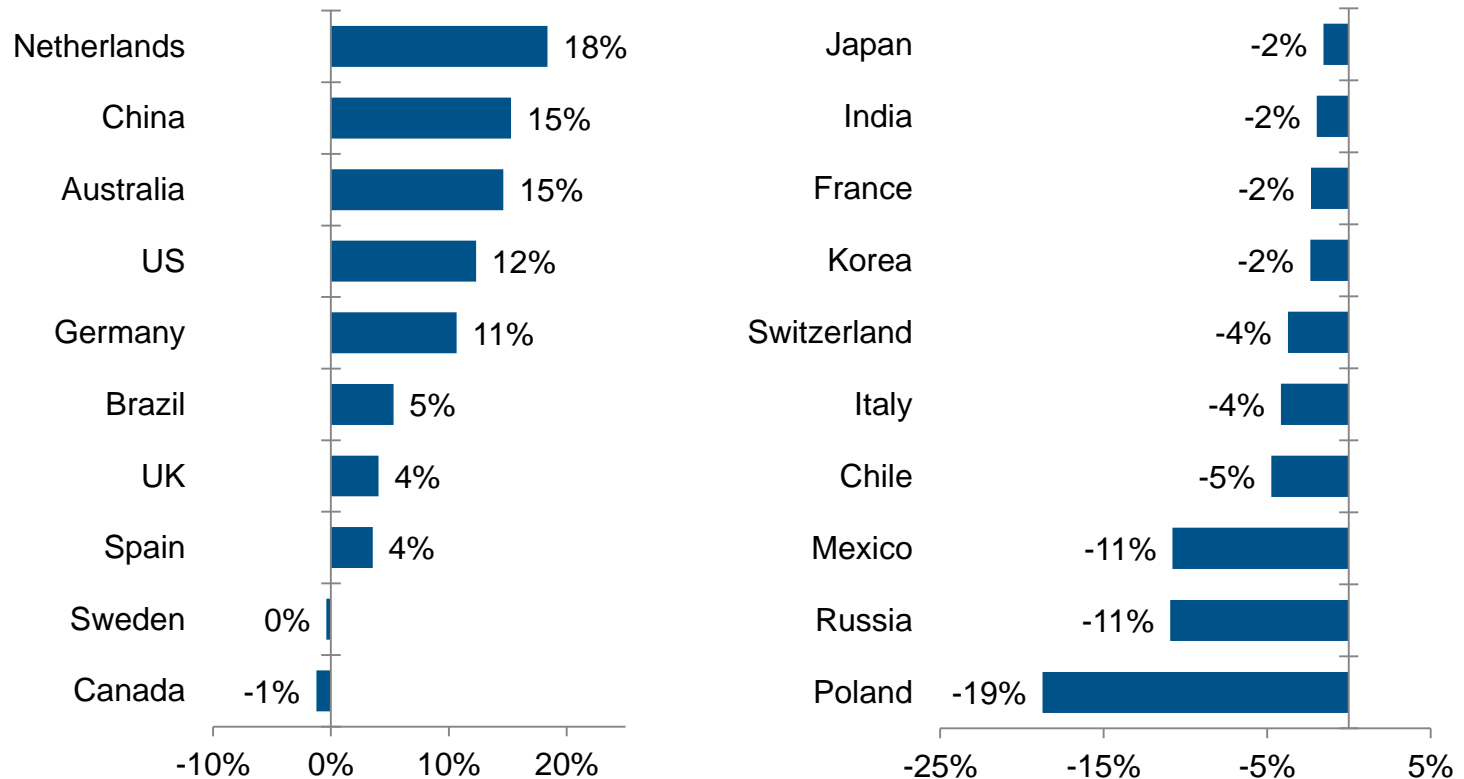
**Note:** Countries are ranked from best to worst according to the projection results for 2040.

\* Total income includes government health benefits.

# Total Income Category

## Total Income Trend Indicator

**Percent Change in the Per Capita Ratio of Average After-Tax Elderly to Nonelderly Total Income from 2010 to 2040\***



**Note:** Countries are ranked from best to worst.

\* Total income includes government health benefits.

# Income Vulnerability Category

## Median Income Level Indicator

### Per Capita Ratio of Median After-Tax Elderly to Nonelderly Cash Income, 2010-2040\*

		2010	2020	2030	2040			2010	2020	2030	2040
1	Brazil	1.29	1.25	1.28	<b>1.40</b>	11	France	0.93	0.85	0.82	<b>0.81</b>
2	US	1.34	1.40	1.41	<b>1.39</b>	12	Sweden	0.78	0.80	0.80	<b>0.79</b>
3	Australia	0.97	1.06	1.17	<b>1.28</b>	13	Switzerland	0.86	0.80	0.79	<b>0.78</b>
4	Chile	1.40	1.37	1.29	<b>1.25</b>	14	Japan	0.88	0.82	0.75	<b>0.78</b>
5	Germany	1.08	1.08	1.15	<b>1.18</b>	15	Spain	0.79	0.80	0.74	<b>0.72</b>
6	Netherlands	0.96	0.97	1.07	<b>1.15</b>	16	India	0.73	0.73	0.72	<b>0.70</b>
7	UK	1.08	0.98	1.00	<b>1.01</b>	17	Korea	0.74	0.59	0.58	<b>0.65</b>
8	Italy	1.12	1.05	0.97	<b>0.96</b>	18	Russia	0.83	0.71	0.65	<b>0.65</b>
9	Canada	1.06	1.06	1.00	<b>0.94</b>	19	Poland	0.75	0.63	0.64	<b>0.56</b>
10	Mexico	0.94	0.93	0.92	<b>0.85</b>	20	China	0.50	0.51	0.50	<b>0.50</b>

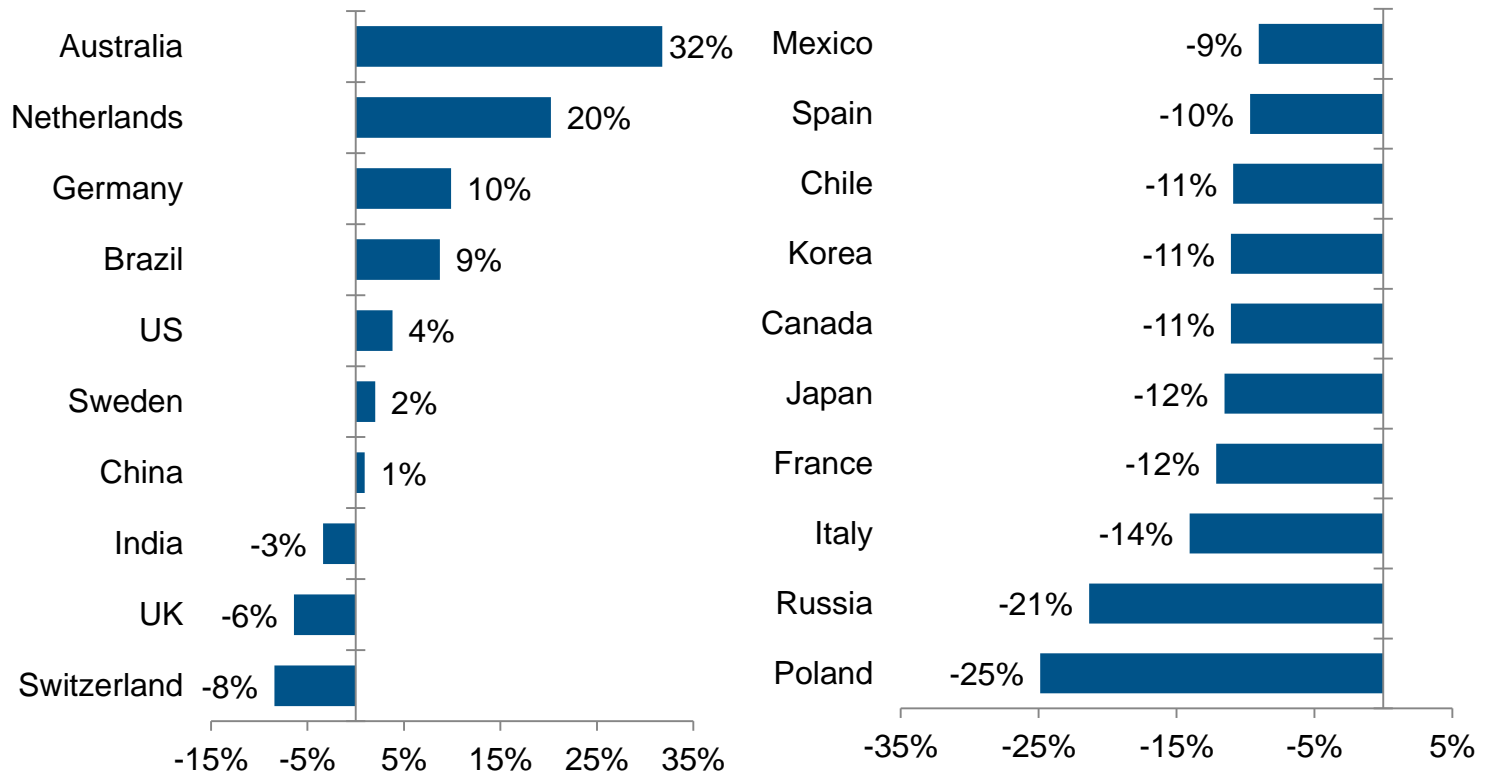
**Note:** Countries are ranked from best to worst according to the projection results for 2040.

\* Data for both the elderly and nonelderly refer to the third quintile of the income distribution.

# Income Vulnerability Category

## Median Income Trend Indicator

Percentage Change in the Per Capita Ratio of Median After-Tax Elderly to Nonelderly Cash Income from 2010 to 2040\*



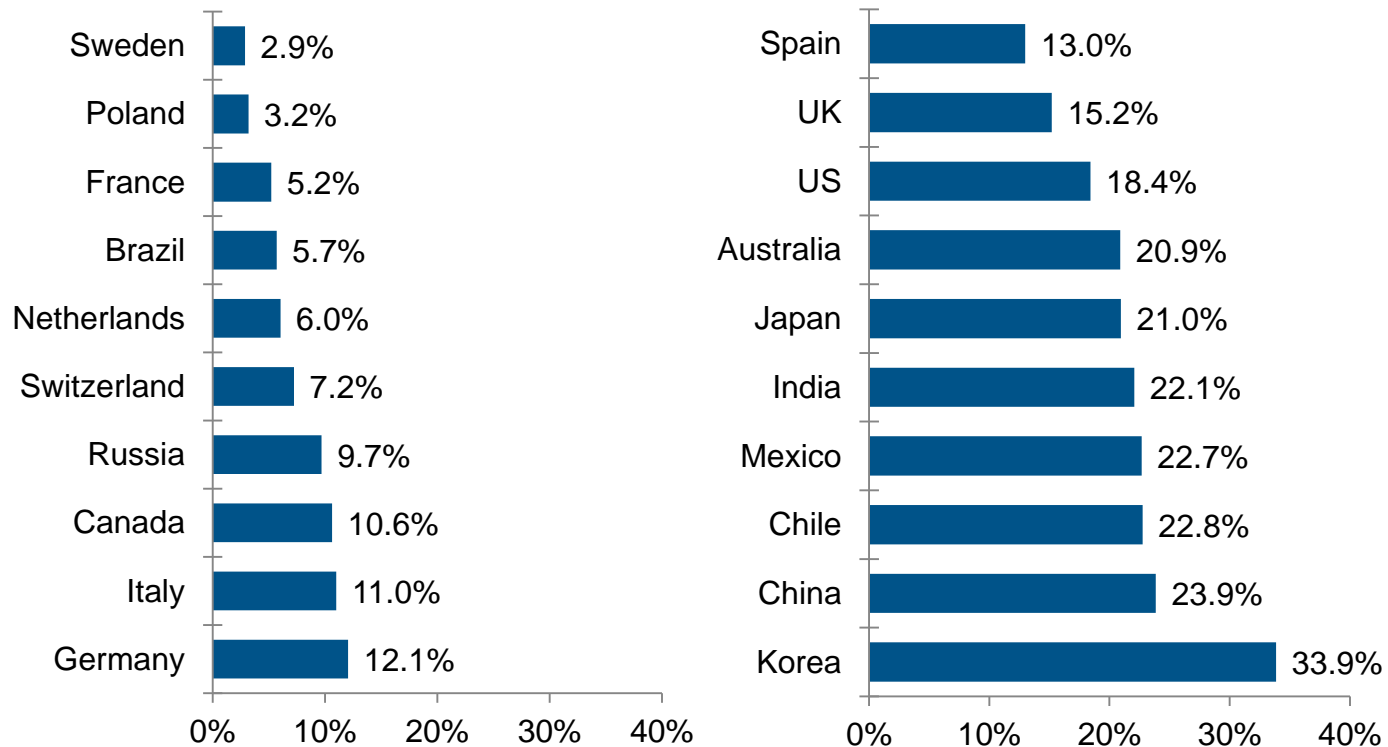
Note: Countries are ranked from best to worst.

\* Data for both the elderly and nonelderly refer to the third quintile of the income distribution.

# Income Vulnerability Category

## Poverty Level Indicator

Percent of the Elderly with Incomes beneath 50 Percent of the Median Income for All Persons in 2010 or the Most Recent Available Year

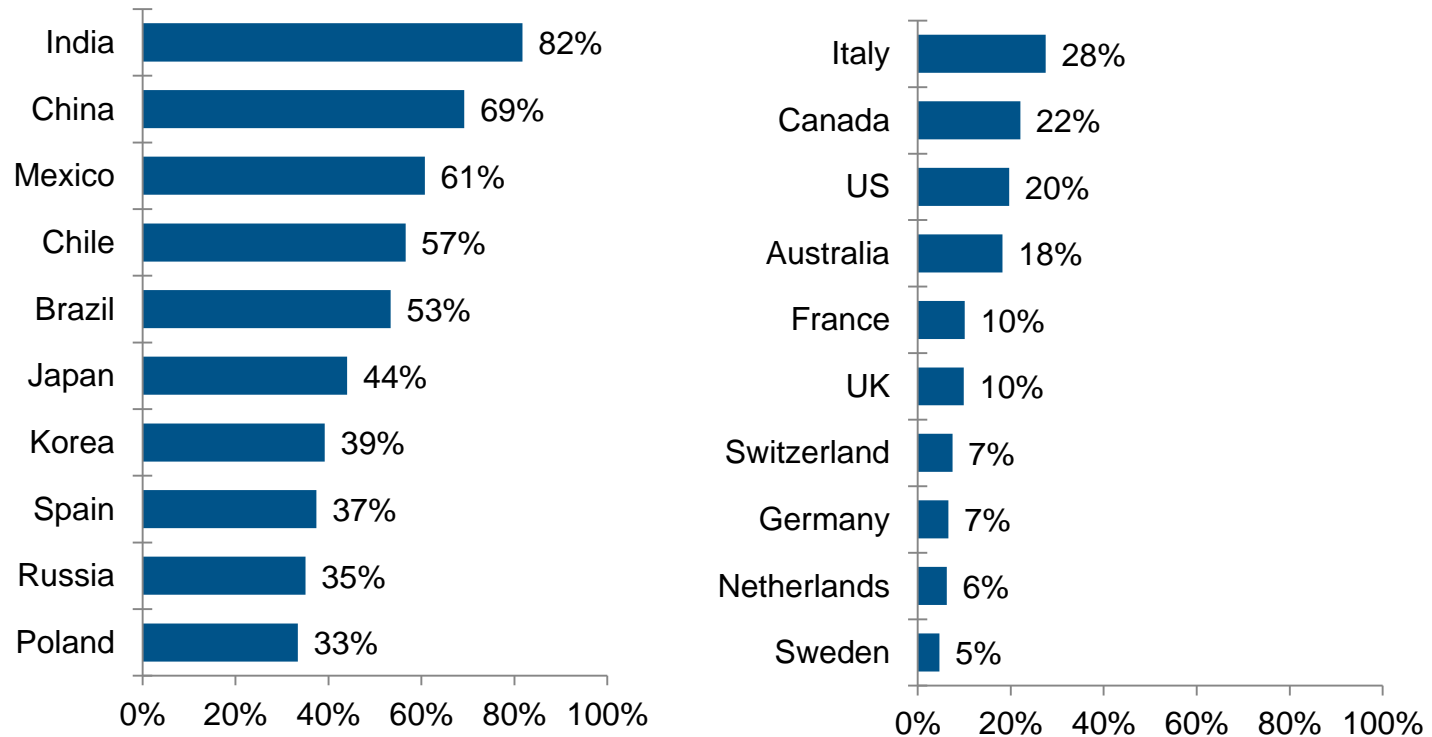


Note: Countries are ranked from best to worst.

# Family Support Category

## Family Ties Indicator

**Percent of the Elderly Living in Households with Their Adult Children in 2010 or the Most Recent Available Year**



**Note:** Countries are ranked from best to worst.

# Family Support Category

## Family Size Indicator

### Average Number of Surviving Children of the Elderly: 2010-2040 and Change from 2010 to 2040

	2010	2020	2030	2040	Change		2010	2020	2030	2040	Change
1 Sweden	2.0	1.7	1.8	2.0	-0.1	11 Australia	2.7	2.1	2.0	2.0	-0.8
2 Poland	2.3	2.3	2.2	2.0	-0.3	12 Italy	2.2	2.1	1.4	1.4	-0.9
3 Russia	1.9	1.7	1.7	1.5	-0.4	13 Canada	2.6	1.8	1.6	1.7	-0.9
4 UK	2.3	1.8	1.8	1.9	-0.4	14 Chile	3.4	2.7	2.5	2.4	-1.0
5 France	2.4	1.9	1.8	1.9	-0.4	15 India	3.8	3.7	3.2	2.6	-1.1
6 Japan	2.0	1.9	1.7	1.5	-0.5	16 Spain	2.7	2.2	1.5	1.4	-1.2
7 Germany	1.9	1.4	1.4	1.4	-0.5	17 Korea	3.6	2.6	1.7	1.8	-1.7
8 Switzerland	2.0	1.6	1.5	1.6	-0.5	18 Brazil	3.9	3.1	2.4	2.1	-1.7
9 US	2.5	1.9	1.8	1.9	-0.6	19 China	4.3	3.3	2.2	2.0	-2.3
10 Netherlands	2.3	1.6	1.6	1.6	-0.6	20 Mexico	5.0	4.1	3.1	2.6	-2.4

Note: Countries are ranked from best to worst according to the projected change from 2010 to 2040.

# Second Edition GAP Index Rankings

Fiscal Sustainability Index		Income Adequacy Index	
1	India	1	Netherlands
2	Mexico	2	US
3	Chile	3	Brazil
4	China	4	Australia
5	Russia	5	Germany
6	Australia	6	Sweden
7	Sweden	7	UK
8	Canada	8	Chile
9	Poland	9	Canada
10	Korea	10	France
11	US	11	Italy
12	Switzerland	12	Spain
13	UK	13	China
14	Brazil	14	Japan
15	Japan	15	India
16	France	16	Switzerland
17	Netherlands	17	Mexico
18	Germany	18	Russia
19	Italy	19	Korea
20	Spain	20	Poland

# Second Edition GAP Index Rankings and Change from First Edition Rankings

Fiscal Sustainability Index			Income Adequacy Index		
<b>1</b>	<b>India</b>	-	<b>1</b>	<b>Netherlands</b>	-
<b>2</b>	<b>Mexico</b>	-	<b>2</b>	<b>US</b>	+1
<b>3</b>	<b>Chile</b>	-	<b>3</b>	<b>Brazil</b>	-1
<b>4</b>	<b>China</b>	-	<b>4</b>	<b>Australia</b>	+2
<b>5</b>	<b>Russia</b>	-	<b>5</b>	<b>Germany</b>	-1
<b>6</b>	<b>Australia</b>	+1	<b>6</b>	<b>Sweden</b>	+1
<b>7</b>	<b>Sweden</b>	+3	<b>7</b>	<b>UK</b>	-2
<b>8</b>	<b>Canada</b>	+1	<b>8</b>	<b>Chile</b>	-
<b>9</b>	<b>Poland</b>	-3	<b>9</b>	<b>Canada</b>	+2
<b>10</b>	<b>Korea</b>	+2	<b>10</b>	<b>France</b>	+6
<b>11</b>	<b>US</b>	-	<b>11</b>	<b>Italy</b>	+6
<b>12</b>	<b>Switzerland</b>	+1	<b>12</b>	<b>Spain</b>	-3
<b>13</b>	<b>UK</b>	+2	<b>13</b>	<b>China</b>	+5
<b>14</b>	<b>Brazil</b>	+4	<b>14</b>	<b>Japan</b>	-2
<b>15</b>	<b>Japan</b>	-7	<b>15</b>	<b>India</b>	-5
<b>16</b>	<b>France</b>	+3	<b>16</b>	<b>Switzerland</b>	-2
<b>17</b>	<b>Netherlands</b>	-	<b>17</b>	<b>Mexico</b>	+3
<b>18</b>	<b>Germany</b>	-4	<b>18</b>	<b>Russia</b>	-3
<b>19</b>	<b>Italy</b>	-3	<b>19</b>	<b>Korea</b>	-
<b>20</b>	<b>Spain</b>	-	<b>20</b>	<b>Poland</b>	-7

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