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International Comparison of Road Traffic Fatalities, 2018

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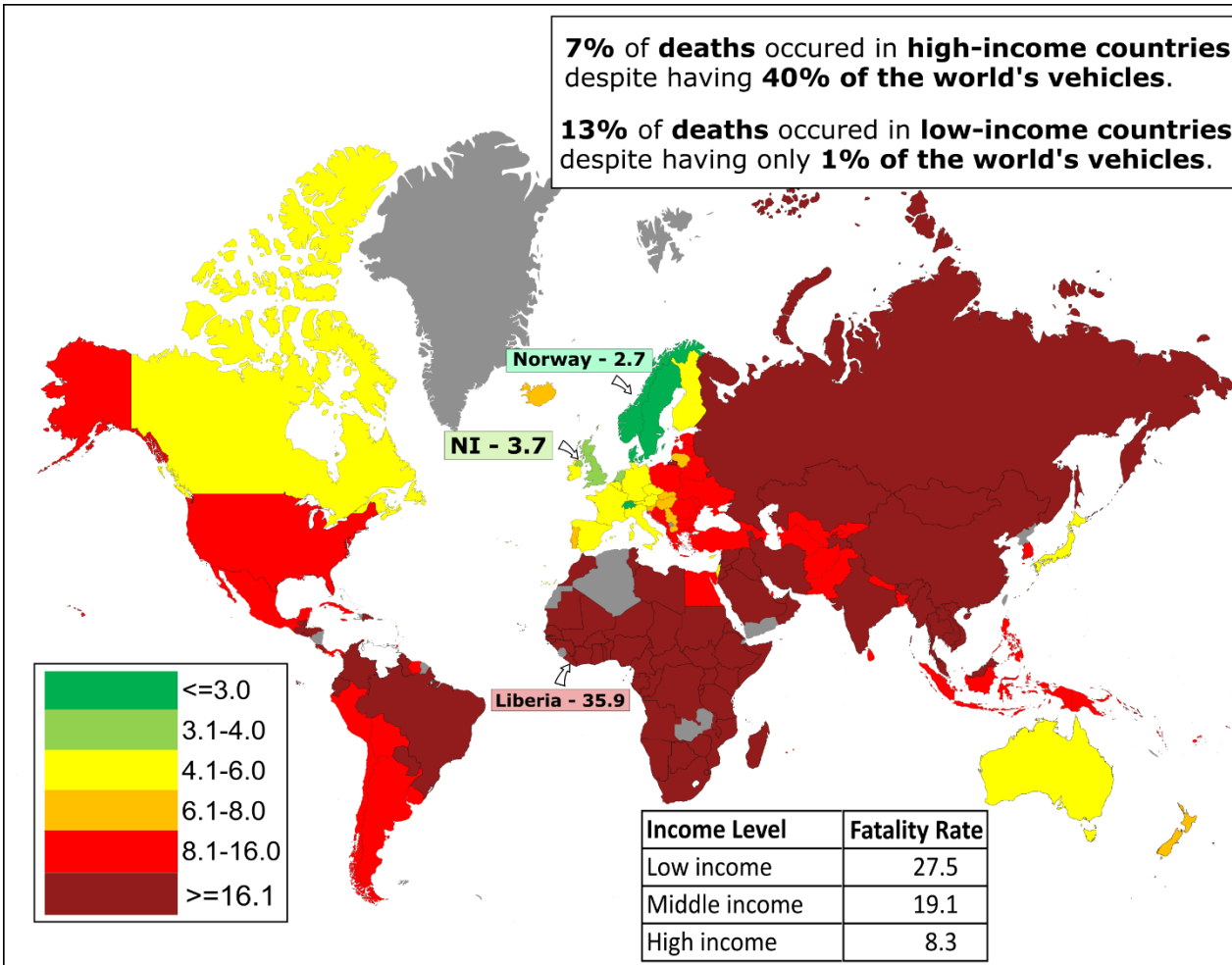
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Analysis, Statistics and Research Branch
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International comparison of Road Traffic Fatalities

1. Introduction

Map 1: Global Rate of Road Traffic Fatalities per 100,000 population, 2016



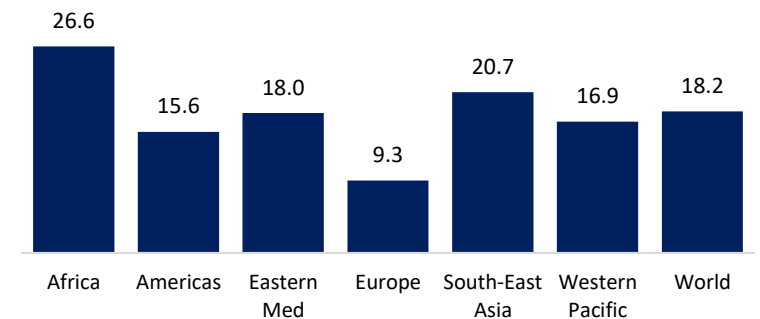
Source: World Health Organisation (WHO) Global Status Report on Road Safety, 2018

The most recent year for which an almost complete set of global road traffic fatalities data is available is 2016 (as reported in the World Health Organisation (WHO) Global Status Report on Road Safety, 2018). Map 1 shows the rate of fatalities per 100,000 population.

The rate of death varies widely between the different regions and countries of the world. The global rate of road traffic fatalities is 18.2 per 100,000 population; however, this ranges widely from 2.7 in Norway to 35.9 in Liberia. See Table A1 in the Annex for a full list.

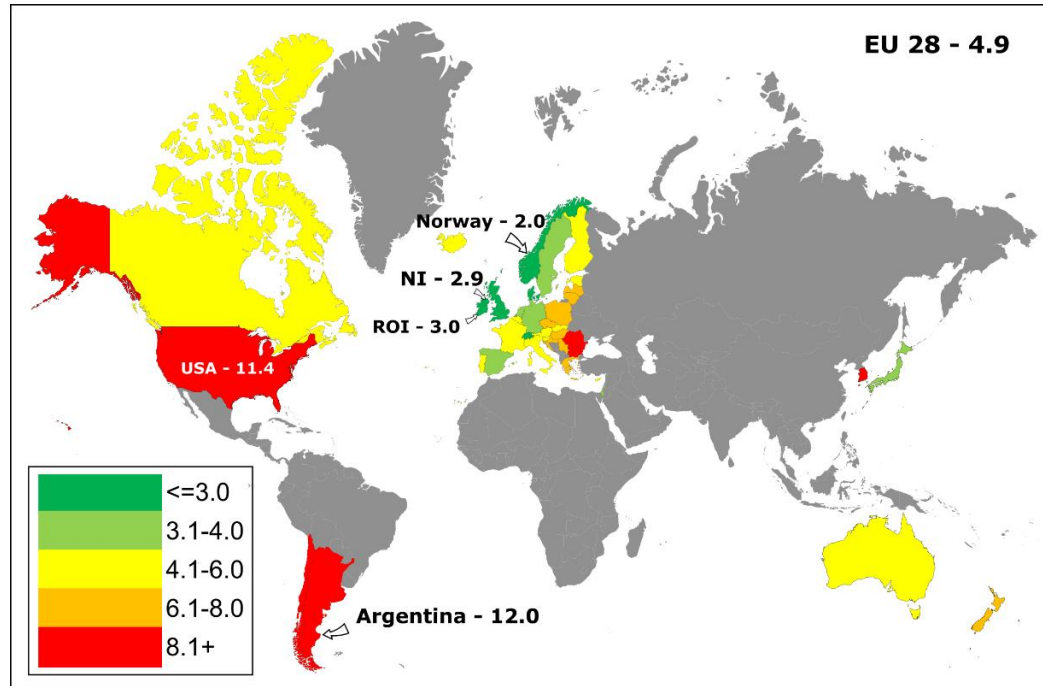
There is a strong association between the risk of a road traffic death and the income level of the country. The risk is more than 3 times higher in low-income countries (27.5) than high-income countries (8.3). Taking vehicles in to account further emphasises this point: although only 1% of motor vehicles are in low-income countries, 13% of road traffic deaths occurred in these countries.

Figure 1: Fatality Rate by WHO regions, 2016



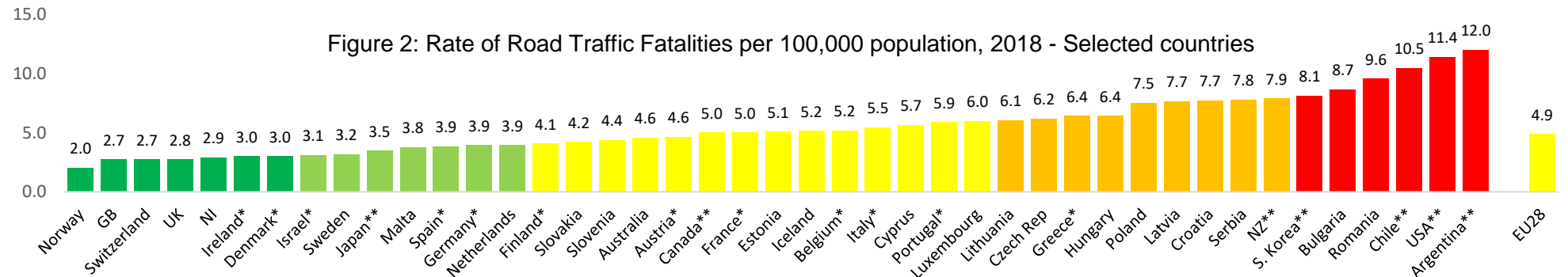
2. Northern Ireland in Focus

Map 2: Rate of Road Traffic Fatalities per 100,000 population, 2018



Because the road traffic fatality rate varies so widely throughout the world, the remaining analysis will focus on a smaller subset of countries, examining the rate in Northern Ireland compared with similar countries (close in geography and/or income levels). The International Traffic Safety Data and Analysis Group (IRTAD) database and the European Transport Safety Council Annual Road Safety Performance Index Report provides the relevant data. In this case, the most recently available data is 2018. Northern Ireland has a similar rate to ROI and GB¹ (2.9 compared with 3.0 and 2.7, respectively). Elsewhere in Europe, Norway has the lowest rate (2.0), while Romania and Bulgaria have the highest rates (9.6 and 8.7, respectively).

The rate in the Americas is generally higher than in Europe (Argentina, 12.0; USA, 11.4). See Figure 2 below.

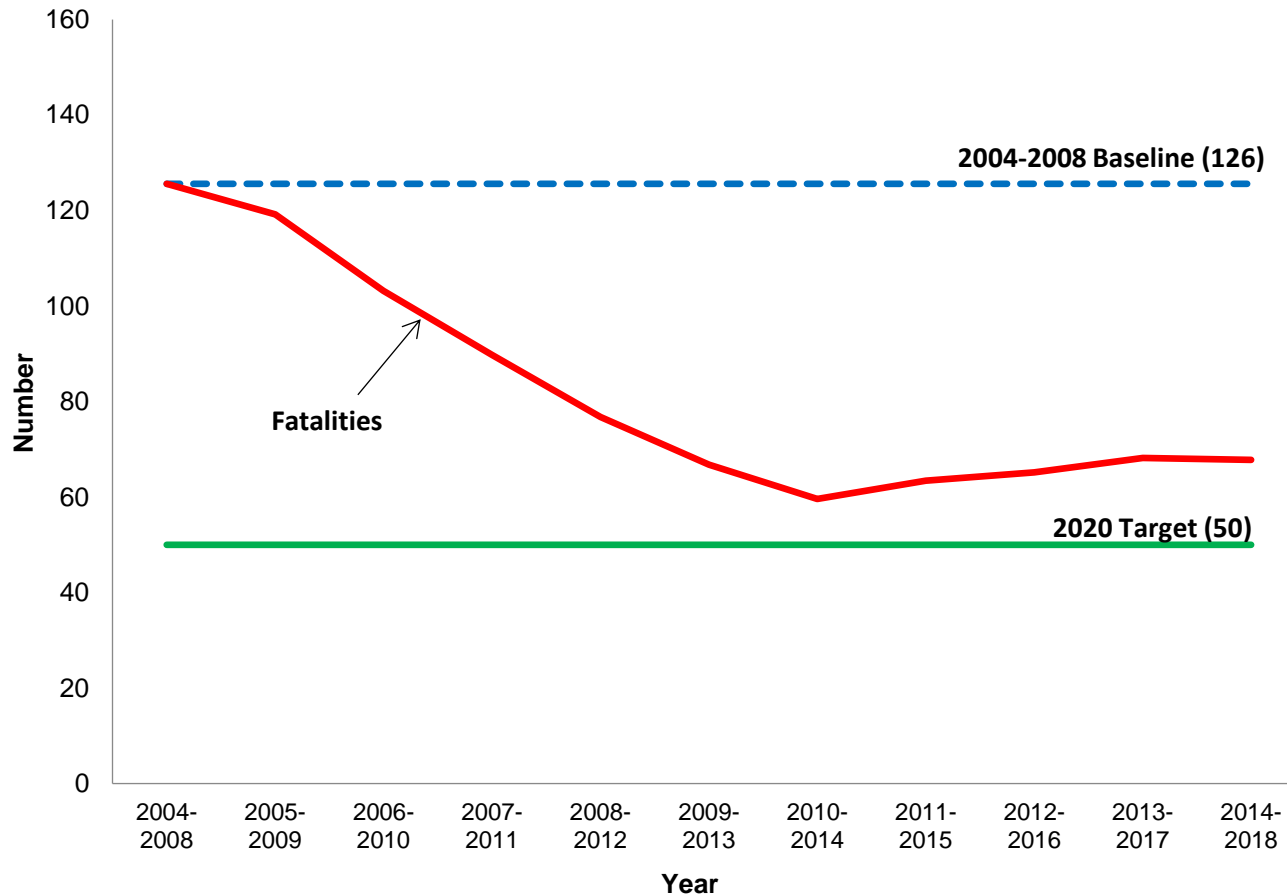


¹ GB data for 2018 are the provisional total for year ending June 2018.

*National provisional estimates used for 2018, as the finalised figures were not yet available. ** Data for 2018 not yet available – 2017 data has been used.

2.1 Recent trend in Northern Ireland

Figure 3: Number of road traffic fatalities in Northern Ireland, 2004-2018 (rolling average)



Northern Ireland's Road Safety Strategy (NIRSS) to 2020 outlines the key road safety challenges to be addressed by government between 2010 and 2020. It identified four casualty reduction targets – the first of which is to reduce the number of people killed in road collisions by at least 60% by 2020. Figure 3 shows the five-year rolling average.

At the beginning of the strategy, the number of fatalities fell steeply – from the baseline figure of 126 in 2004-2008, to 60 in 2010-2014. At this point it seemed that the strategy target was within reach. However, since the middle of the current decade, the number of fatalities has levelled off. This same trend is seen in a large number of the strategy's targets and Key Performance Indicators – for example the number of people seriously injured and the number of persons aged 16-24 killed or seriously injured. See <https://www.infrastructure-ni.gov.uk/articles/northern-ireland-road-safety-strategy-2020-statistics>.

2.2 International Trend

The percentage change in International fatality rates since a baseline average (2004-2008) is presented in Figure 4 below. The order of the countries remains the same as in Figure 2 (rate of fatalities per 100,000 population in 2018 in ascending order). As can be seen, there has been significant progress in the majority of countries – the fatality rate in the EU28 countries has decreased by an average of 43% between 2004-2008 and 2014-2018; in comparison, the rate in NI has decreased by 49% in the same time period. Interestingly, some countries that remain

in the Orange Zone (6.1-8.0 fatalities per 100,000 population in 2018) have experienced some of the largest decreases - the rate in Lithuania has decreased by 65%; Latvia has decreased by 55%. Chile and the USA have experienced the smallest decreases (16% and 20%, respectively). Alternatively, figure A1 (page 18) in the Annex plots the progress for each country in reducing the mortality rate.

Figure 4: Percentage change in fatality rate from 2004-2008 (Baseline) to 2014-2018

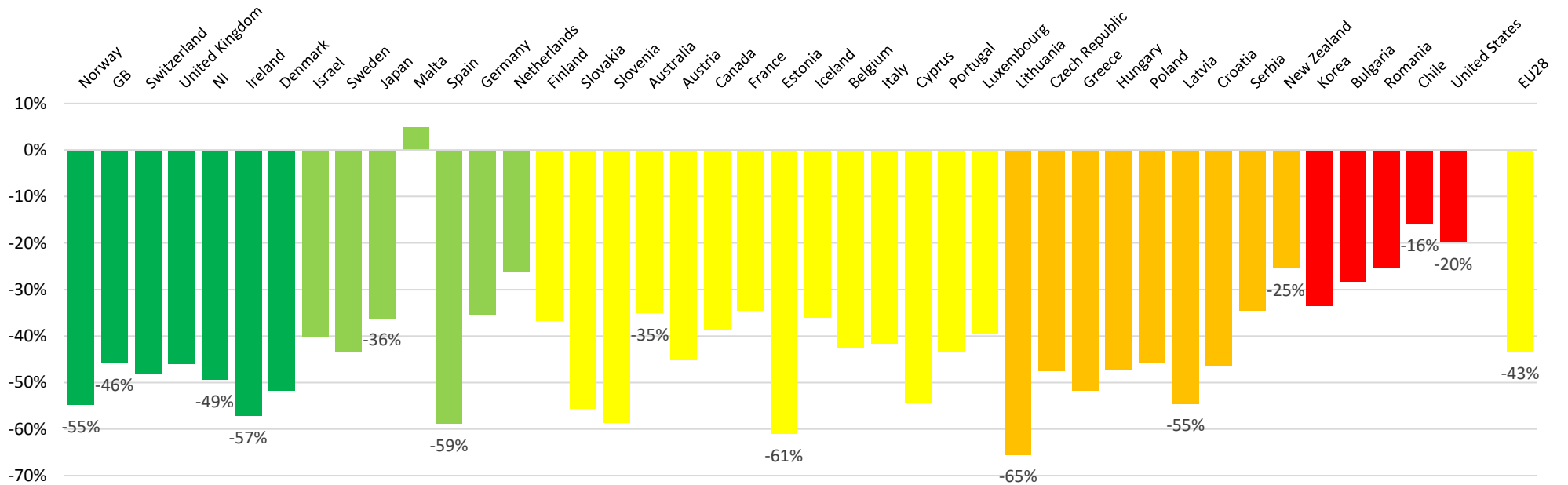


Figure 5a: Rate of Fatalities in Selected Countries, 2004-2018 – Constant decreasing trend line

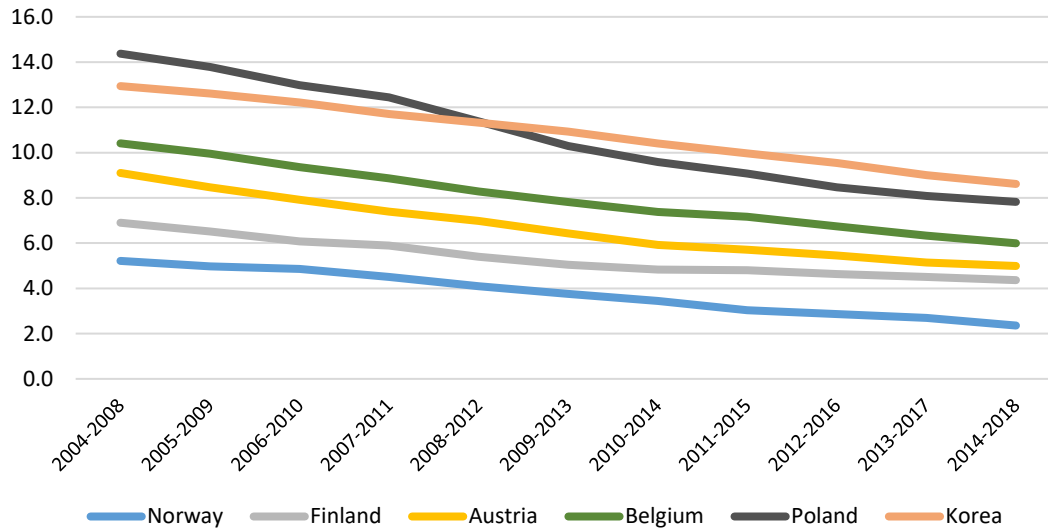
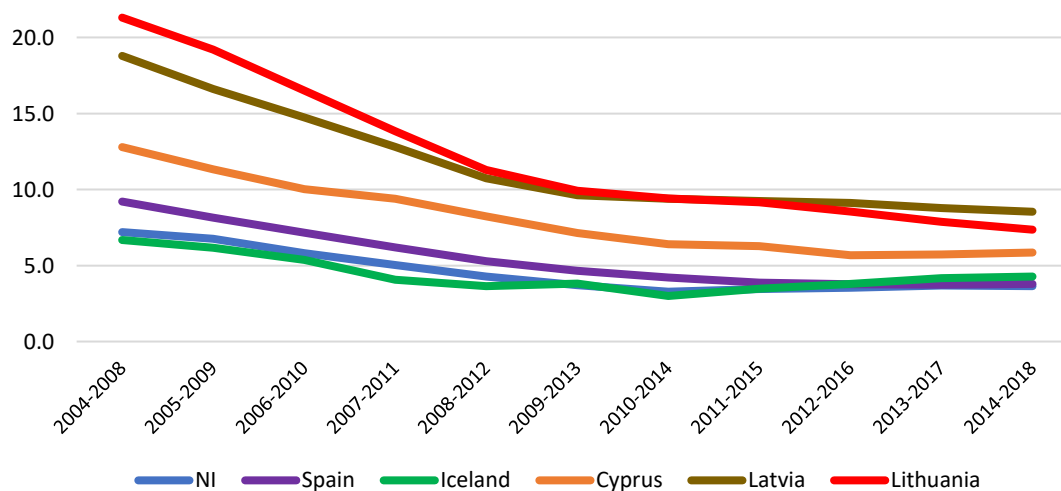


Figure 5b: Rate of Fatalities in Selected Countries, 2004-2018 – Decreasing then Levelled Off Trend



While it is clear from Figure 4 that countries have experienced a decrease in fatality rate since 2004-2008, the trends over time tells a mixed story. In some countries, the trend line generally decreases constantly over time; in other countries, the trend line is similar to that in NI (early decrease followed by levelling off). Figures 5a and 5b plot some example trend lines for each group – see Table A2 and Figures A2-A45 in the Annex for the full breakdown.

The number of countries with a trend like that in Figure 5b is far greater than those countries with a steady downward trend. In fact, of the 42 countries included in this analysis, roughly two-thirds demonstrated a decreasing trend followed by levelling off or reversal. The 2018 IRTAD Annual Report states:

“Traffic fatalities in 2016 were down 3.6% compared to 2010. If the United States are excluded, the reduction was nearly 15%. However, most of the improvement was achieved at the beginning of the current decade. Since 2015, progress has slowed down markedly and a number of countries have experienced a reversal. Compared to 2014, the year with the lowest traffic death toll on record for IRTAD countries in the past three decades, the death toll was 5.6% higher in 2016.... The long-term trend is positive but very far from sufficient to achieve international road safety objectives”

Following on from this, two questions arise:

- What has caused the levelling off in road traffic fatalities?
- Why are some countries immune from this levelling off?

The following section discusses possible answers.

3 Context behind the trends

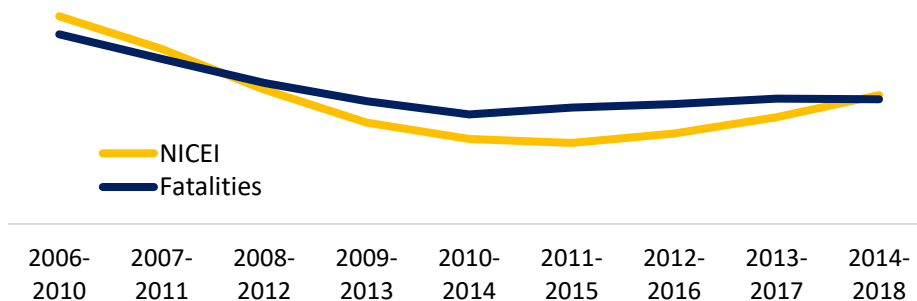
3.1 What has caused the levelling off in road traffic fatalities?

The IRTAD Annual Report mentions four potential factors; however, it must be noted that these are not exhaustive and the policy context specific to NI should be considered when trying to fully understand any reasons behind the time series:

1 The economic downturn and recovery

“The aftermath of the 2008 financial crisis was associated with a decrease in the number of road deaths. The decline of economic activity may have contributed to about two thirds of the overall reduction in the years 2008 to 2010 (see [Why Does Road Safety Improve When Economic Times Are Hard? ITF 2015](#)). Conversely, the economic recovery from 2013 onwards was accompanied by a significant increase in the number of road deaths as motorised travel picked up again.” (IRTAD Annual Report, 2018).

Figure 6: Road Traffic Fatalities in NI and the Northern Ireland Composite Economic Index (NICEI), 2006-2018



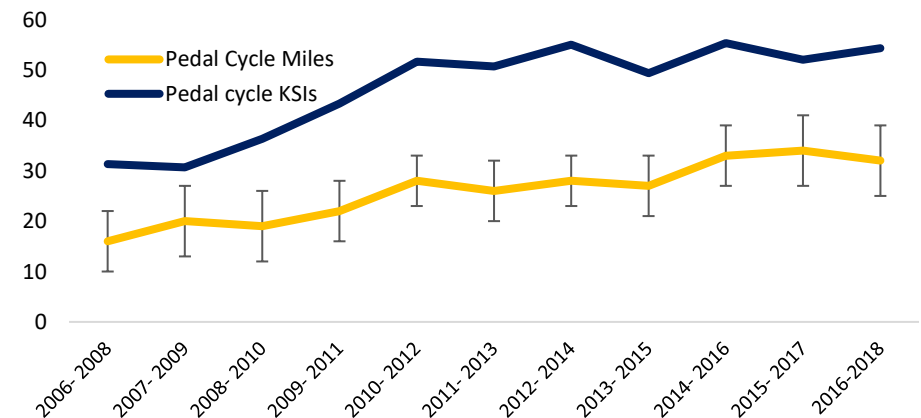
As can be seen in Figure 6, the IRTAD findings seem to apply to NI: when Economic Activity declined, fatality numbers fell. Post 2013, the economy began to grow, and so too did fatalities.

2 The increased popularity of cycling

“Countries that collect data on cycling have registered a strong increase in kilometres cycled over the past years. In several cases, this development is associated with significantly higher numbers of fatal cycling crashes. Studies show that the overall public health benefits of more cycling outweigh negative health impacts of increased crash risk (see [Cycling, Health and Safety, ITF 2013](#)). Nevertheless, the growing number of cyclists requires new approaches to traffic management and investment into safe cycling infrastructure to improve road safety and reduce fatalities and injuries.” (IRTAD Annual Report, 2018).

In NI, the data show that miles travelled by cyclists has been generally increasing. At the same time, pedal cycle KSIs have also increased.

Figure 7: Pedal Cycle Miles Travelled and Pedal Cycle KSIs in NI, 2006-2018



Note: Error bar shows the 95% confidence range around the central estimate of miles travelled.

3 A slack in enforcement of traffic rules

“Several countries report a lower intensity of enforcement measures. In some cases, this is due to a shift in the police forces’ priorities. Less strict enforcement of traffic rules is likely to encourage dangerous driving behaviour, notably speeding and drink-driving, and ultimately leads to more crashes and traffic deaths.” (IRTAD Annual Report, 2018).

Figure 8 below shows the trend of fatalities in NI plotted alongside police recorded motoring offences. The number of motoring offences rose from 2007-2011 to 2011-2015, while at the same time fatality numbers fell. In recent years, both trends have reversed.

Figure 8: Road Traffic Fatalities and PSNI Recorded Motoring Offences in NI, 2007-2018



| 2007-2011 | 2008-2012 | 2009-2013 | 2010-2014 | 2011-2015 | 2012-2016 | 2013-2017 | 2014-2018 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|

4 The rise of distracted driving

“Several countries mention a marked increase in the number of crashes due to the use of mobile phone or other digital devices while driving. Empirical evidence is patchy in the absence of standardised data to monitor the impact of distraction on driving. The available information supports the view, however, that distracted driving is developing into a major road safety risk that requires a more systematic response.” (IRTAD Annual Report, 2018).

As reported by IRTAD, empirical evidence on collisions caused by mobile phone usage is sparse. In Northern Ireland, collision causation is input by PSNI officers investigating the collision - by the time police attend the scene, the phone may be removed or secured elsewhere. It is only in the case of a fatality that police powers to examine a phone are held to be reasonable and proportionate to the potential intrusion that a mobile phone examination would entail. As it stands, in the five years 2014-2018, mobile phone causations (principal or secondary) were recorded in only 6 fatalities (2%) and 14 serious injuries (0.4%) – but it is probably the case where these numbers were higher.

Internationally, there are some data available from observational studies on mobile phone use in vehicles – however, these studies are costly to run and are therefore not conducted regularly. In Northern Ireland, there are some self-reporting survey data available. In the 2017/18 Continuous Household Survey, 7% of drivers reported using their phone to make a hand-held call in a moving vehicle in the previous 12 months; 10% reported quickly checking their phone; 6% admitted they had sent a text message and 2% said they had checked their email/social media. This was the first time these questions had been included, so there is no trend data yet available.

3.2 Why are some countries seemingly immune?

After examining four of the potential factors which may influence road traffic casualties, it is also worth considering why some countries continue to see falling fatality numbers when other countries have seen numbers level off or increase. Again, the IRTAD discusses the issue – and although exact reasons are not known, and will vary from country to country, they state two probable policy areas which may lead to answers:

- Effective road safety policies are more resilient to other factors (like unemployment); and
- Effective labour market policies limit the rise of unemployment.

“Considerable differences between countries exist with respect to how sensitive the number of traffic fatalities is to changes in unemployment. In some countries changes in unemployment were associated with large changes in the number of fatalities, for instance in Sweden and in the United States. In other countries, like France and Japan, fluctuations in unemployment hardly affected the long-term declining trend in the number of fatalities. (See Figure 9 for NI trends).

Why is the relationship strong in some countries and weak in others? The answer to this question probably lies in two policy areas. On the one hand, if road safety policy is effective, i.e. it succeeds in bringing about a sustained reduction in the number of traffic fatalities year after year, it may be more resilient to the impacts of other factors like unemployment than where road safety policies have been less effective. On the other

hand, labour market policies may be more impactful in some countries than in others. An effective labour market policy limits the rise of unemployment and keeps its fluctuations over time within a narrow range – potentially so much so, that unemployment will not have a large influence on the number of traffic fatalities.” ([Why Does Road Safety Improve When Economic Times Are Hard? \(ITF, 2015\)](#))

Figure 9: Road traffic fatalities and unemployment rate in NI, 2008-2018

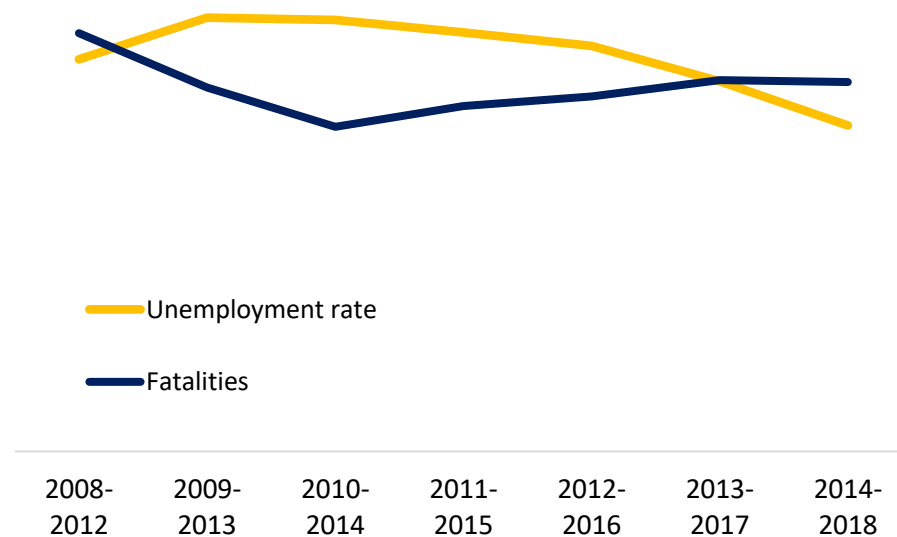


Figure 9 above shows how the unemployment rate in NI compares with the trend in road traffic fatalities - with an increase in unemployment rate seemingly being associated with a decrease in fatalities, and vice-versa.

4 Recommendations from the International Traffic Safety Data and Analysis Group (IRTAD)

The IRTAD presents a number of recommendations for reducing the number of road deaths effectively and quickly, stating that countries with the best results have already put them in to practice.

4.1 A Safe System Approach (SSA) - recommended by both the WHO and the OECD

“The plateauing of past downward trends in some well-performing countries suggests that tried and tested approaches to reduce traffic fatalities may be reaching the limits of their effectiveness. A step change is needed to create a new live-saving dynamic. The Safe System offers such a perspective: centred on forgiving errors and containing crash energy levels below the limits that cause catastrophic harm, this systematic and integrated way of dealing with crash risk in the road system promises opportunities to unlock higher levels of safety for all road users.” (IRTAD Annual Report, 2018)

In essence, the theory of Safe Systems accepts that even the most conscientious person will make a mistake at some point, and the goal is to ensure that these mistakes do not lead to a crash; or, if a crash does occur, it is sufficiently controlled to not cause a death or a life-changing injury. It is a shared responsibility between stakeholders (road users, road managers, vehicle manufacturers, etc.) to take appropriate actions to ensure that road collisions do not lead to serious or fatal injuries.

² See Speed and Crash Risk for more information on the correlation between speed and crash risk <https://www.itf-oecd.org/speed-crash-risk>

4.2 Legislate and Enforce Road Safety Standards

“Even with a shift to Safe System thinking, priorities remain to: **ensure appropriate speeds, foster seatbelt and helmet use, and act against drink-driving.** (IRTAD Annual Report, 2018)

Speed

The 2018 annual report states that speed management is critical to any road safety strategy – reducing speed will reduce collision frequency and severity. In France road traffic fatalities reduced by 5.8% between 2017 and 2018, and this was largely attributed to the reduction of the legal speed limit on rural roads from 90km/h to 80km/h. The new law came in to force in July 2018 - there were 127 fewer road deaths on rural roads limited to the new 80 km/h speed limit compared to the 2013-2017 average on the same roads for the months July to December. The same comparison for the rest of the French road network shows an improvement of only 15 deaths, which is not a significant change. (Road Safety Performance Index Report, 2019)²

BAC levels

The IRTAD Annual Report claims that there has been little progress in reducing the proportion of crashes caused by drink-driving, remaining stable around 20%-30%. In NI, the proportion of fatal collisions caused by drink driving is lower – around 15% in 2014-2018 - but it does remain around this level. The IRTAD recommends that blood alcohol content (BAC) levels are set and enforced, noting that most countries already have established BAC levels, but that the maximum legal level varies by country. It also notes that most countries apply lower BAC levels for

novice and professional drivers, which is something that NI is currently planning to introduce. The IRTAD also states that “Collecting better data on the role of alcohol in road crashes will help countries to address this persistent problem more effectively”³ –the ASRB analysis on fatal and serious collisions caused by drink-driving⁴ may assist with this.

Seatbelts

The IRTAD report states that seat belts are one of the most effective tools to save the lives of vehicle users, and data in NI certainly shows that the likelihood of being killed in a collision is much higher if you are not wearing a seatbelt. In the five years 2014-2018, 0.5% of all car occupant casualties who were wearing a seatbelt sustained fatal injuries, compared with 3.1% of car occupant casualties who were not wearing a seat belt. While the overall number of car user fatalities who were not wearing a seatbelt is small (an average of 7 per year in the last five years), they make up a sizeable proportion of the total number of such fatalities: over the period 2014-2018, just under one-fifth (17%) of car occupant fatalities were not wearing a seatbelt.

Helmet Use

In all IRTAD member and observer countries except the United States, the use of helmets on powered two-wheelers (motorcycles and mopeds) is compulsory. For pedal cycles, helmet use for adult cyclists is not compulsory in most countries; however, in some countries, children must wear cycle helmets.

³ See Alcohol-Related Road Casualties in Official Crash Statistics, ITF 2018 <https://www.itf-oecd.org/alcohol-related-road-casualties-official-crash-statistics>

5 Ireland - Winner of the 2019 Road Safety Performance Index Award

Ireland is the winner of this year’s [European Transport Safety Council](#) Road Safety Performance Index (PIN) award. The annual award is presented to a European country that has demonstrated continued progress on road safety combined with a strategic approach to tackling the problem across government. Ireland was the second safest European Union Member State in 2018, in terms of road mortality (road deaths per million inhabitants) and has moved up five places in the ranking of EU countries since 2010. In terms of numbers killed, Ireland has cut annual deaths by more than 30% since 2010. By comparison, deaths increased in other relatively safe countries over the same period including Sweden and the Netherlands.

According to ETSC, Ireland’s performance has been driven by the establishment of a specific government road safety agency (Road Safety Authority – RSA), a long-term strategic plan to cut road deaths with specific targets, regular evaluation and follow-up, and a multi-agency approach to delivery across government. In recent years considerable efforts have been put in place on tackling dangerous speeding, as well as drink-driving. See <https://etsc.eu/13th-annual-road-safety-performance-index-pin-report/> .

⁴ <https://www.infrastructure-ni.gov.uk/articles/fatal-and-serious-ksi-road-traffic-collisions-caused-by-drink-driving-northern-ireland-2013-2017>

6 Annex

Table A1: Road Traffic Fatalities in 2016 by Country
(Country colour coded according to fatality rate - estimated road traffic death rate per 100,000 population)

Fatality Rate

<=3
3.1-4.0
4.1-6.0
6.1-8.0
8.1-16.0
>=16.1



| Country/Area | Population numbers for 2016 ^a | Income level ^c | Reported number of road traffic deaths | Modelled number of road traffic deaths ^d | Estimated road traffic death rate per 100 000 population ^d |
|----------------------------------|--|---------------------------|--|---|---|
| Afghanistan | 34656032 | Low | 1565 | 5230 | 15.1 |
| Albania | 2926348 | Middle | 269 | 399 | 13.6 |
| Angola | 28813464 | Middle | 2845 | 6797 | 23.6 |
| Antigua and Barbuda | 100963 | High | 8 | 8 | 7.9 |
| Argentina | 43847432 | Middle | 5530 | 6119 | 14 |
| Armenia | 2924816 | Middle | 267 | 499 | 17.1 |
| Australia | 24125848 | High | 1296 | 1351 | 5.6 |
| Austria | 8712137 | High | 432 | 452 | 5.2 |
| Azerbaijan | 9725376 | Middle | 759 | 845 | 8.7 |
| Bangladesh | 162951552 | Middle | 2376 ^e | 24954 | 15.3 |
| Barbados | 284996 | High | 9 | 16 | 5.6 |
| Belarus | 9480042 | Middle | 588 | 841 | 8.9 |
| Belgium | 11358379 | High | 637 | 657 | 5.8 |
| Belize | 366954 | Middle | 101 | 104 | 28.3 |
| Benin | 10872298 | Low | 637 ^e | 2986 | 27.5 |
| Bhutan | 797765 | Middle | 125 | 139 | 17.4 |
| Bolivia (Plurinational State of) | 10887882 | Middle | 1259 | 1687 | 15.5 |
| Bosnia and Herzegovina | 3516816 | Middle | 318 | 552 | 15.7 |
| Botswana | 2250260 | Middle | 450 | 535 | 23.8 |
| Brazil | 207652864 | Middle | 38651 ^e | 41007 | 19.7 |
| Bulgaria | 7131494 | Middle | 708 | 730 | 10.2 |
| Burkina Faso | 18646432 | Low | 878 | 5686 | 30.5 |
| Burundi | 10524117 | Low | 112 ^e | 3651 | 34.7 |
| Cabo Verde | 539560 | Middle | 41 | 135 | 25.0 |
| Cambodia | 15762370 | Middle | 1852 | 2803 | 17.8 |
| Cameroon | 23439188 | Middle | 1879 | 7066 | 30.1 |
| Canada | 36289824 | High | 1858 ^e | 2118 | 5.8 |
| Central African Republic | 4594621 | Low | 193 | 1546 | 33.6 |
| Chad | 14452543 | Low | 1122 ^f | 3990 | 27.6 |
| Chile | 17909754 | High | 1675 | 2245 | 12.5 |
| China | 1411415375 | Middle | 58022 ^e | 256180 | 18.2 |
| Colombia | 48653420 | Middle | 7158 | 8987 | 18.5 |

| | | | | | |
|----------------------------------|------------|--------|-------------------|--------|------|
| Comoros | 795601 | Low | 23 | 211 | 26.5 |
| Congo | 5125821 | Middle | 308 | 1405 | 27.4 |
| Cook Islands | 17379 | High | 5 ^e | 3 | 17.3 |
| Costa Rica | 4857274 | Middle | 795 ^e | 812 | 16.7 |
| Côte d'Ivoire | 23695920 | Middle | 991 | 5582 | 23.6 |
| Croatia | 4213265 | Middle | 307 | 340 | 8.1 |
| Cuba | 11475982 | Middle | 750 | 975 | 8.5 |
| Cyprus | 1170125 | High | 46 | 60 | 5.1 |
| Czechia | 10610947 | High | 611 | 630 | 5.9 |
| Democratic Republic of the Congo | 78736152 | Low | 385 | 26529 | 33.7 |
| Denmark | 5711870 | High | 211 | 227 | 4.0 |
| Dominica | 73543 | Middle | 10 ^e | 8 | 10.9 |
| Dominican Republic | 10648791 | Middle | 3118 | 3684 | 34.6 |
| Ecuador | 16385068 | Middle | 2894 | 3490 | 21.3 |
| Egypt | 95688680 | Middle | 8211 | 9287 | 9.7 |
| El Salvador | 6344722 | Middle | 1215 | 1411 | 22.2 |
| Equatorial Guinea | 1221490 | Middle | 41 ^e | 300 | 24.6 |
| Eritrea | 4954645 | Low | 130 | 1255 | 25.3 |
| Estonia | 1312442 | High | 71 | 80 | 6.1 |
| Eswatini | 1343098 | Middle | 203 | 361 | 26.9 |
| Ethiopia | 102403200 | Low | 4352 ^e | 27326 | 26.7 |
| Fiji | 898760 | Middle | 60 | 86 | 9.6 |
| Finland | 5503132 | High | 252 | 260 | 4.7 |
| France | 64720688 | High | 3477 | 3585 | 5.5 |
| Gabon | 1979786 | Middle | 54 ⁱ | 460 | 23.2 |
| Gambia | 2038501 | Low | 139 | 605 | 29.7 |
| Georgia | 3925405 | Middle | 581 | 599 | 15.3 |
| Germany | 81914672 | High | 3206 | 3327 | 4.1 |
| Ghana | 28206728 | Middle | 1802 ^e | 7018 | 24.9 |
| Greece | 11183716 | High | 824 | 1026 | 9.2 |
| Grenada | 107317 | Middle | 10 | 10 | 9.3 |
| Guatemala | 16582469 | Middle | 2058 | 2758 | 16.6 |
| Guinea | 12395924 | Low | 458 | 3490 | 28.2 |
| Guinea-Bissau | 1815698 | Low | 122 | 565 | 31.1 |
| Guyana | 773303 | Middle | 128 | 190 | 24.6 |
| Honduras | 9112867 | Middle | 1407 | 1525 | 16.7 |
| Hungary | 9753281 | High | 607 | 756 | 7.8 |
| Iceland | 332474 | High | 18 | 22 | 6.6 |
| India | 1324171392 | Middle | 150785 | 299091 | 22.6 |
| Indonesia | 261115456 | Middle | 31282 | 31726 | 12.2 |
| Iran (Islamic Republic of) | 80277424 | Middle | 15932 | 16426 | 20.5 |
| Iraq | 37202572 | Middle | 4134 | 7686 | 20.7 |
| Ireland | 4726078 | High | 188 | 194 | 4.1 |
| Israel | 8191828 | High | 335 | 345 | 4.2 |
| Italy | 59429936 | High | 3428 ^e | 3333 | 5.6 |

| | | | | | |
|----------------------------------|-----------|--------|--------------------|-------|------|
| Jamaica | 2881355 | Middle | 379 | 391 | 13.6 |
| Japan | 127748512 | High | 4682 | 5224 | 4.1 |
| Jordan | 9455802 | Middle | 750 | 2306 | 24.4 |
| Kazakhstan | 17987736 | Middle | 2625 | 3158 | 17.6 |
| Kenya | 48461568 | Middle | 2965 | 13463 | 27.8 |
| Kiribati | 114395 | Middle | 5 | 5 | 4.4 |
| Kuwait | 4052584 | High | 424 | 715 | 17.6 |
| Kyrgyzstan | 5955734 | Middle | 812 | 916 | 15.4 |
| Lao People's Democratic Republic | 6758353 | Middle | 1086 | 1120 | 16.6 |
| Latvia | 1970530 | High | 158 | 184 | 9.3 |
| Lebanon | 6006668 | Middle | 576 ^e | 1090 | 18.1 |
| Lesotho | 2203821 | Middle | 318 | 638 | 28.9 |
| Liberia | 4613823 | Low | 175 | 1657 | 35.9 |
| Libya | 6293253 | Middle | 2414 | 1645 | 26.1 |
| Lithuania | 2908249 | High | 192 | 234 | 8.0 |
| Luxembourg | 575747 | High | 32 | 36 | 6.3 |
| Madagascar | 24894552 | Low | 340 | 7108 | 28.6 |
| Malawi | 18091576 | Low | 1122 | 5601 | 31.0 |
| Malaysia | 31187264 | Middle | 7152 | 7374 | 23.6 |
| Maldives | 427756 | Middle | 4 | 4 | 0.9 |
| Mali | 17994836 | Low | 541 | 4159 | 23.1 |
| Malta | 429362 | High | 22 | 26 | 6.1 |
| Mauritania | 4301018 | Middle | 184 | 1064 | 24.7 |
| Mauritius | 1262132 | Middle | 144 | 173 | 13.7 |
| Mexico | 127540424 | Middle | 16039 ^e | 16725 | 13.1 |
| Micronesia (Federated States of) | 104937 | Middle | 2 | 2 | 1.9 |
| Mongolia | 3027398 | Middle | 484 | 499 | 16.5 |
| Montenegro | 628615 | Middle | 65 | 67 | 10.7 |
| Morocco | 35276784 | Middle | 3785 | 6917 | 19.6 |
| Mozambique | 28829476 | Low | 1379 | 8665 | 30.1 |
| Myanmar | 52885224 | Middle | 4887 | 10540 | 19.9 |
| Namibia | 2479713 | Middle | 731 | 754 | 30.4 |
| Nepal | 28982772 | Low | 2006 ^e | 4622 | 15.9 |
| Netherlands | 16987330 | High | 621 ^e | 648 | 3.8 |
| New Zealand | 4660833 | High | 327 | 364 | 7.8 |
| Niger | 20672988 | Low | 978 | 5414 | 26.2 |
| Nigeria | 185989632 | Middle | 5053 | 39802 | 21.4 |
| Norway | 5254694 | High | 135 | 143 | 2.7 |
| Oman | 4424762 | High | 692 | 713 | 16.1 |
| Pakistan | 193203472 | Middle | 4448 ^e | 27582 | 14.3 |
| Panama | 4034119 | Middle | 440 | 575 | 14.3 |
| Papua New Guinea | 8084991 | Middle | 158 | 1145 | 14.2 |
| Paraguay | 6725308 | Middle | 1202 | 1529 | 22.7 |
| Peru | 31773840 | Middle | 2696 | 4286 | 13.5 |
| Philippines | 103320224 | Middle | 10012 ^e | 12690 | 12.3 |

| | | | | | |
|---|-----------|--------|-------------------|-------|------|
| Poland | 38224408 | High | 3026 | 3698 | 9.7 |
| Portugal | 10371627 | High | 563 | 768 | 7.4 |
| Qatar | 2569804 | High | 178 | 239 | 9.3 |
| Republic of Korea | 50791920 | High | 4292 | 4990 | 9.8 |
| Republic of Moldova | 4059608 | Middle | 346 | 394 | 9.7 |
| Romania | 19778084 | Middle | 1913 | 2044 | 10.3 |
| Russian Federation | 143964512 | Middle | 20308 | 25969 | 18.0 |
| Rwanda | 11917508 | Low | 593 | 3535 | 29.7 |
| Saint Lucia | 178015 | Middle | 15 | 63 | 35.4 |
| Samoa | 195125 | Middle | 17 ^e | 22 | 11.3 |
| San Marino | 33203 | High | 0 | 0 | 0.0 |
| Sao Tome and Principe | 199910 | Middle | 23 | 55 | 27.5 |
| Saudi Arabia | 32275688 | High | 9031 | 9311 | 28.8 |
| Senegal | 15411614 | Low | 604 | 3609 | 23.4 |
| Serbia | 8820083 | Middle | 607 | 649 | 7.4 |
| Seychelles | 94228 | High | 15 | 15 | 15.9 |
| Singapore | 5622455 | High | 141 | 155 | 2.8 |
| Slovakia | 5444218 | High | 275 | 330 | 6.1 |
| Slovenia | 2077862 | High | 130 | 134 | 6.4 |
| Solomon Islands | 599419 | Middle | 11 | 104 | 17.4 |
| Somalia | 14317996 | Low | 165 | 3884 | 27.1 |
| South Africa | 56015472 | Middle | 14071 | 14507 | 25.9 |
| South Sudan | 12230730 | Low | 130 | 3661 | 29.9 |
| Spain | 46347576 | High | 1810 | 1922 | 4.1 |
| Sri Lanka | 20798492 | Middle | 3003 | 3096 | 14.9 |
| Sudan | 39578828 | Middle | 2311 | 10178 | 25.7 |
| Suriname | 558368 | Middle | 74 | 81 | 14.5 |
| Sweden | 9837533 | High | 270 | 278 | 2.8 |
| Switzerland | 8401739 | High | 216 | 223 | 2.7 |
| Syrian Arab Republic | 18430452 | Middle | 714 | 4890 | 26.5 |
| Tajikistan | 8734951 | Middle | 427 | 1577 | 18.1 |
| Thailand | 68863512 | Middle | 21745 | 22491 | 32.7 |
| The former Yugoslav Republic of Macedonia | 2081206 | Middle | 148 ^e | 134 | 6.4 |
| Timor-Leste | 1268671 | Middle | 71 | 161 | 12.7 |
| Togo | 7606374 | Low | 514 | 2224 | 29.2 |
| Tonga | 107122 | Middle | 18 | 18 | 16.8 |
| Trinidad and Tobago | 1364962 | High | 135 | 165 | 12.1 |
| Tunisia | 11403248 | Middle | 1443 | 2595 | 22.8 |
| Turkey | 79512424 | Middle | 7300 | 9782 | 12.3 |
| Turkmenistan | 5662544 | Middle | 543 | 823 | 14.5 |
| Uganda | 41487964 | Low | 3503 | 12036 | 29.0 |
| Ukraine | 44438624 | Middle | 4687 | 6089 | 13.7 |
| United Arab Emirates | 9269612 | High | 725 | 1678 | 18.1 |
| United Kingdom | 65788572 | High | 1804 ^e | 2019 | 3.1 |
| United Republic of Tanzania | 55572200 | Low | 3256 | 16252 | 29.2 |

| | | | | | |
|------------------------------------|-----------|--------|--------------------|-------|------|
| United States of America | 322179616 | High | 35092 ^e | 39888 | 12.4 |
| Uruguay | 3444006 | High | 446 | 460 | 13.4 |
| Uzbekistan | 31446796 | Middle | 2496 | 3617 | 11.5 |
| Vanuatu | 270402 | Middle | 9 | 43 | 15.9 |
| Venezuela (Bolivarian Republic of) | 31568180 | Middle | 7028 ^e | 10640 | 33.7 |
| Viet Nam | 94569072 | Middle | 8417 | 24970 | 26.4 |
| West Bank and Gaza Strip | 4790705 | Middle | 159 | 252 | 5.3 |
| Zimbabwe | 16150362 | Low | 1721 | 5601 | 34.7 |

Source: World Health Organisation (WHO) Global Status Report on Road Safety, 2018

Notes:

a Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (June 2017). World population Prospects: The 2017 Revision, Highlights. New York: United Nations

b Gross National Income (GNI) per capita is the dollar value of a country's final income in a year divided by its population using Atlas methodology. Data from World Development Indicators database, World Bank, November 2017. <http://data.worldbank.org/indicator/NY.GNP.PCAP.CD/countries>

c World Development Indicators database: Low income is \$1 005 or less, middle income is \$1 006 to \$12 235, high income is \$12 236 or more

d Modelled using negative binomial regression. Data from countries with good vital registration and countries with a population of less than 150 000 were not included in the model

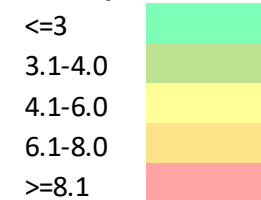
e 2016 data not available

f From Jan-Oct 2016

g 2016 data not available. Latest available used from World Development Indicators database

Table A2: Rate of Road Traffic Fatalities per 100,000 population, 2004-2018 – Selected countries.
(Country colour coded according to most recent year of data)

Fatality Rate



| Year | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| Argentina | .. | .. | .. | .. | .. | 13.0 | 12.6 | 12.3 | 12.3 | 12.3 | 12.4 | .. | 12.7 | 12.0 | 12.0** |
| Australia | 7.9 | 8.1 | 7.8 | 7.7 | 6.8 | 6.9 | 6.1 | 5.7 | 5.7 | 5.1 | 4.9 | 5.1 | 5.3 | 5.0 | 4.6 |
| Austria | 10.8 | 9.4 | 8.8 | 8.3 | 8.2 | 7.6 | 6.6 | 6.2 | 6.3 | 5.4 | 5.1 | 5.6 | 5.0 | 4.7 | 4.6* |
| Belgium | 11.2 | 10.8 | 10.5 | 10.3 | 9.2 | 8.9 | 7.8 | 8.0 | 7.5 | 6.9 | 6.7 | 6.8 | 5.9 | 5.4 | 5.2* |
| Bulgaria | 12.2 | 12.4 | 13.7 | 13.3 | 14.1 | 12.1 | 10.5 | 8.9 | 8.2 | 8.3 | 9.1 | 9.8 | 9.9 | 9.6 | 8.7 |
| Canada | 8.6 | 9.0 | 8.8 | 8.4 | 7.3 | 6.6 | 6.6 | 5.9 | 6.0 | 5.5 | 5.2 | 5.3 | 5.2 | 5.0 | 5.0** |
| Chile | 14.3 | 13.1 | 13.2 | 13.0 | 13.9 | 11.6 | 12.1 | 11.9 | 11.4 | 12.0 | 11.9 | 11.9 | 12.0 | 10.5 | 10.5** |
| Croatia | 14.1 | 13.8 | 14.2 | 14.4 | 15.4 | 12.7 | 9.9 | 9.7 | 9.2 | 8.6 | 7.3 | 8.2 | 7.3 | 8.0 | 7.7 |
| Cyprus | 16.2 | 13.9 | 11.6 | 11.7 | 10.6 | 8.9 | 7.3 | 8.5 | 5.9 | 5.1 | 5.2 | 6.7 | 5.4 | 6.2 | 5.7 |
| Czech Republic | 13.6 | 12.6 | 10.4 | 11.9 | 10.4 | 8.6 | 7.7 | 7.4 | 7.1 | 6.2 | 6.5 | 7.0 | 5.8 | 5.5 | 6.2 |
| Denmark | 6.8 | 6.1 | 5.6 | 7.5 | 7.4 | 5.5 | 4.6 | 4.0 | 3.0 | 3.4 | 3.3 | 3.1 | 3.7 | 3.0 | 3.0* |
| Estonia | 12.4 | 12.4 | 15.1 | 14.6 | 9.9 | 7.5 | 5.9 | 7.6 | 6.6 | 6.1 | 5.9 | 5.1 | 5.4 | 3.6 | 5.1 |
| Finland | 7.2 | 7.2 | 6.4 | 7.2 | 6.5 | 5.2 | 5.1 | 5.4 | 4.7 | 4.8 | 4.2 | 4.9 | 4.6 | 4.1 | 4.1* |
| France | 9.2 | 8.7 | 7.7 | 7.5 | 6.9 | 6.8 | 6.4 | 6.3 | 5.8 | 5.1 | 5.3 | 5.4 | 5.4 | 5.1 | 5.0* |
| GB | 5.5 | 5.5 | 5.4 | 5.0 | 4.3 | 3.7 | 3.1 | 3.1 | 2.8 | 2.8 | 2.8 | 2.7 | 2.8 | 2.8 | 2.7*** |
| Germany | 7.1 | 6.5 | 6.2 | 6.0 | 5.4 | 5.1 | 4.5 | 5.0 | 4.5 | 4.1 | 4.2 | 4.3 | 3.9 | 3.8 | 3.9* |
| Greece | 15.1 | 15.0 | 14.9 | 14.4 | 13.8 | 13.0 | 11.2 | 10.3 | 8.9 | 8.0 | 7.3 | 7.3 | 7.6 | 6.8 | 6.4* |
| Hungary | 12.8 | 12.7 | 12.9 | 12.2 | 9.9 | 8.2 | 7.4 | 6.4 | 6.1 | 6.0 | 6.3 | 6.5 | 6.2 | 6.4 | 6.4 |
| Iceland | 7.9 | 6.5 | 10.3 | 4.9 | 3.8 | 5.3 | 2.5 | 3.8 | 2.8 | 4.7 | 1.2 | 4.9 | 5.4 | 4.7 | 5.2 |
| Ireland | 9.3 | 9.6 | 8.7 | 7.8 | 6.3 | 5.3 | 4.7 | 4.1 | 3.6 | 4.1 | 4.2 | 3.5 | 3.9 | 3.3 | 3.0* |
| Israel | 6.8 | 6.3 | 5.7 | 5.3 | 5.6 | 4.2 | 4.6 | 4.4 | 3.3 | 3.4 | 3.4 | 3.8 | 3.9 | 3.7 | 3.1* |
| Italy | 10.6 | 10.1 | 9.8 | 8.8 | 8.1 | 7.2 | 7.0 | 6.5 | 6.3 | 5.7 | 5.6 | 5.6 | 5.4 | 5.6 | 5.5* |
| Japan | 6.7 | 6.3 | 5.7 | 5.2 | 4.8 | 4.6 | 4.6 | 4.3 | 4.1 | 4.1 | 3.8 | 3.8 | 3.7 | 3.5 | 3.5** |

| | | | | | | | | | | | | | | | |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------|
| S. Korea | 13.6 | 13.2 | 13.0 | 12.7 | 12.1 | 12.0 | 11.3 | 10.5 | 10.8 | 10.1 | 9.4 | 9.1 | 8.4 | 8.1 | 8.1** |
| Latvia | 22.7 | 19.6 | 18.3 | 19.0 | 14.4 | 11.7 | 10.3 | 8.6 | 8.7 | 8.8 | 10.6 | 9.5 | 8.0 | 7.0 | 7.7 |
| Lithuania | 22.1 | 23.0 | 23.1 | 22.8 | 15.5 | 11.6 | 9.5 | 9.7 | 10.1 | 8.7 | 9.1 | 8.3 | 6.6 | 6.7 | 6.1 |
| Luxembourg | 11.0 | 10.2 | 9.2 | 9.5 | 7.2 | 9.7 | 6.4 | 6.4 | 6.5 | 8.4 | 6.4 | 6.4 | 5.6 | 4.2 | 6.0 |
| Malta | 3.3 | 4.0 | 2.5 | 3.5 | 3.7 | 5.1 | 3.6 | 4.1 | 2.2 | 4.3 | 2.3 | 2.5 | 4.9 | 4.1 | 3.8 |
| Netherlands | 5.4 | 5.0 | 5.0 | 4.8 | 4.6 | 4.4 | 3.9 | 4.0 | 3.9 | 3.4 | 3.4 | 3.7 | 3.7 | 3.6 | 3.9 |
| New Zealand | 10.7 | 9.8 | 9.5 | 10.0 | 8.6 | 8.9 | 8.6 | 6.4 | 6.9 | 5.7 | 6.5 | 6.9 | 7.0 | 7.9 | 7.9** |
| NI | 8.6 | 7.8 | 7.2 | 6.4 | 6.0 | 6.4 | 3.1 | 3.3 | 2.6 | 3.1 | 4.3 | 4.0 | 3.7 | 3.4 | 2.9 |
| Norway | 5.6 | 4.9 | 5.2 | 5.0 | 5.4 | 4.4 | 4.3 | 3.4 | 2.9 | 3.7 | 2.9 | 2.3 | 2.6 | 2.0 | 2.0 |
| Poland | 15.0 | 14.3 | 13.7 | 14.6 | 14.3 | 12.0 | 10.3 | 11.0 | 9.4 | 8.8 | 8.4 | 7.7 | 8.0 | 7.5 | 7.5 |
| Portugal | 12.4 | 11.9 | 9.2 | 9.2 | 8.4 | 8.0 | 8.9 | 8.4 | 6.8 | 6.1 | 6.1 | 5.7 | 5.4 | 5.8 | 5.9* |
| Romania | 11.4 | 12.3 | 12.2 | 13.3 | 14.9 | 13.7 | 11.7 | 10.0 | 10.2 | 9.3 | 9.1 | 9.5 | 9.7 | 9.9 | 9.6 |
| Serbia | 12.9 | 11.3 | 12.3 | 13.1 | 12.3 | 11.0 | 9.0 | 10.1 | 9.5 | 9.1 | 7.5 | 8.4 | 8.6 | 8.2 | 7.8 |
| Slovakia | 11.3 | 11.2 | 11.3 | 12.3 | 11.3 | 7.2 | 6.5 | 6.1 | 6.5 | 4.6 | 5.4 | 5.7 | 5.1 | 5.1 | 4.2 |
| Slovenia | 13.7 | 12.9 | 13.1 | 14.6 | 10.6 | 8.4 | 6.7 | 6.9 | 6.3 | 6.1 | 5.2 | 5.8 | 6.3 | 5.0 | 4.4 |
| Spain | 11.1 | 10.3 | 9.3 | 8.5 | 6.8 | 5.9 | 5.3 | 4.4 | 4.1 | 3.6 | 3.6 | 3.6 | 3.9 | 3.9 | 3.9* |
| Sweden | 5.3 | 4.9 | 4.9 | 5.2 | 4.3 | 3.9 | 2.8 | 3.4 | 3.0 | 2.7 | 2.8 | 2.7 | 2.7 | 2.5 | 3.2 |
| Switzerland | 6.9 | 5.5 | 5.0 | 5.1 | 4.7 | 4.5 | 4.2 | 4.1 | 4.3 | 3.3 | 3.0 | 3.1 | 2.6 | 2.7 | 2.7 |
| UK | 5.6 | 5.5 | 5.4 | 5.0 | 4.4 | 3.8 | 3.0 | 3.1 | 2.8 | 2.8 | 2.9 | 2.8 | 2.8 | 2.8 | 2.8 |
| United States | 14.6 | 14.7 | 14.3 | 13.7 | 12.3 | 11.0 | 10.7 | 10.4 | 10.8 | 10.4 | 10.3 | 11.1 | 11.7 | 11.4 | 11.4** |
| | | | | | | | | | | | | | | | |
| EU28 | 9.7 | 9.3 | 8.8 | 8.7 | 7.9 | 7.1 | 6.3 | 6.1 | 5.6 | 5.2 | 5.1 | 5.2 | 5.1 | 5.0 | 4.9 |

Source: IRTAD Road Safety Database and ETSC Road Safety Performance Index Report, 2019

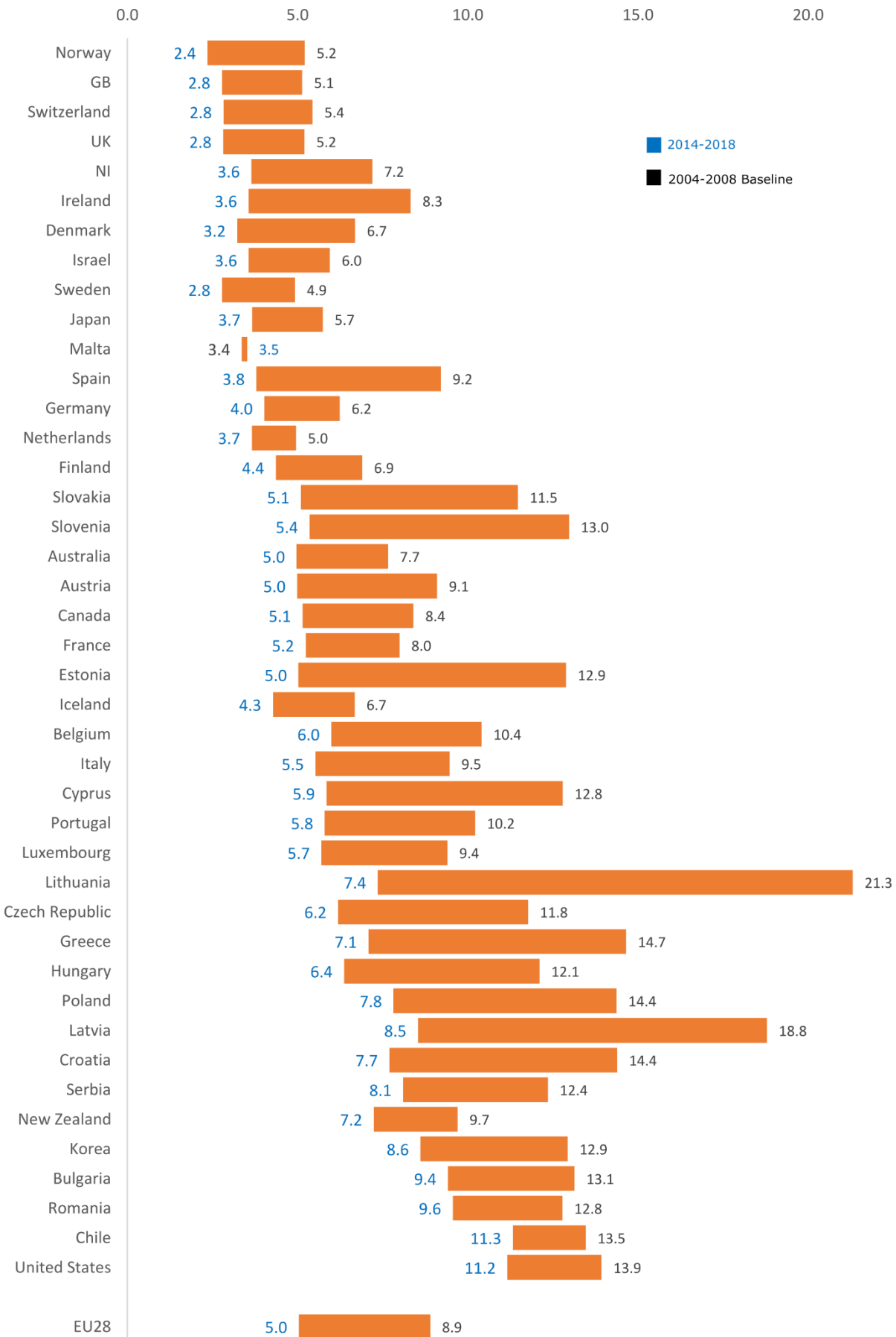
Notes:

*National provisional estimates used for 2018, as the final figures were not yet available.

**2018 figures not yet available, 2017 data has been used.

***GB data for 2018 are the provisional total for Great Britain for the year ending June 2018.

Figure A1: Progress in reducing mortality rates, 2004-2008 Vs 2014-2018



Source: IRTAD Road Safety Database and ETSC Road Safety Performance Index Report, 2019

Figures A2 – A44: Road Traffic Fatality Rate per 100,000 population – Selected Individual Country
 (Source: IRTAD Road Safety Database and ETSC Road Safety Performance Index Report, 2019)

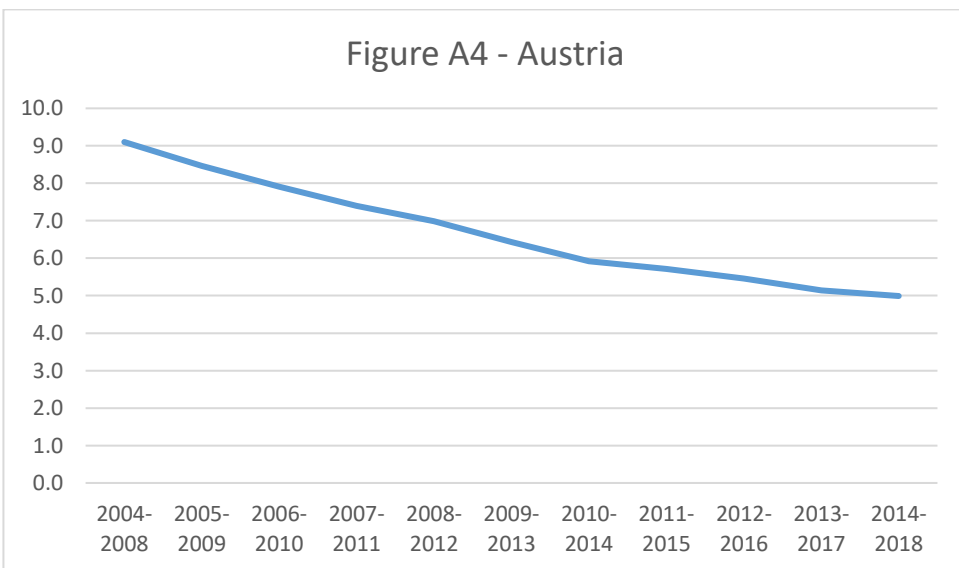
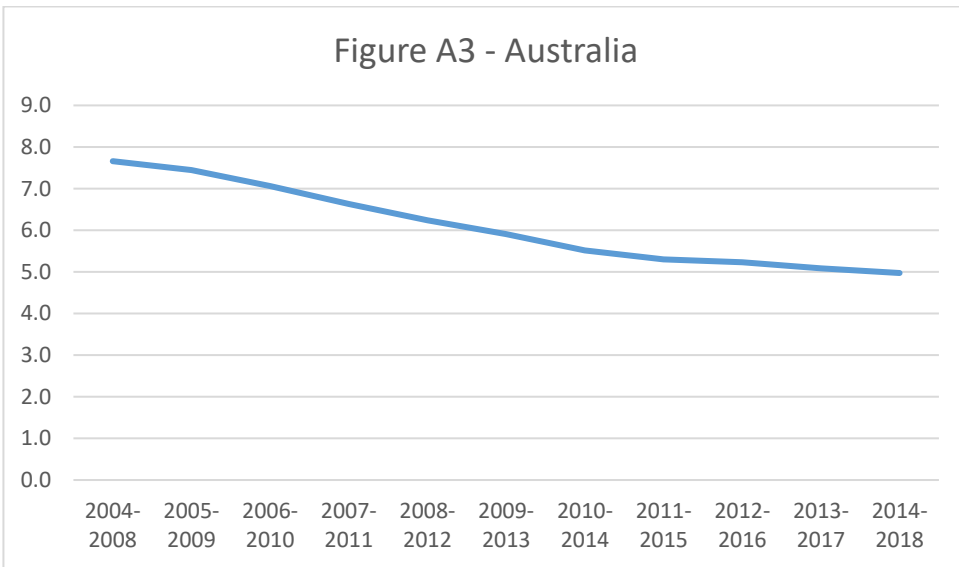
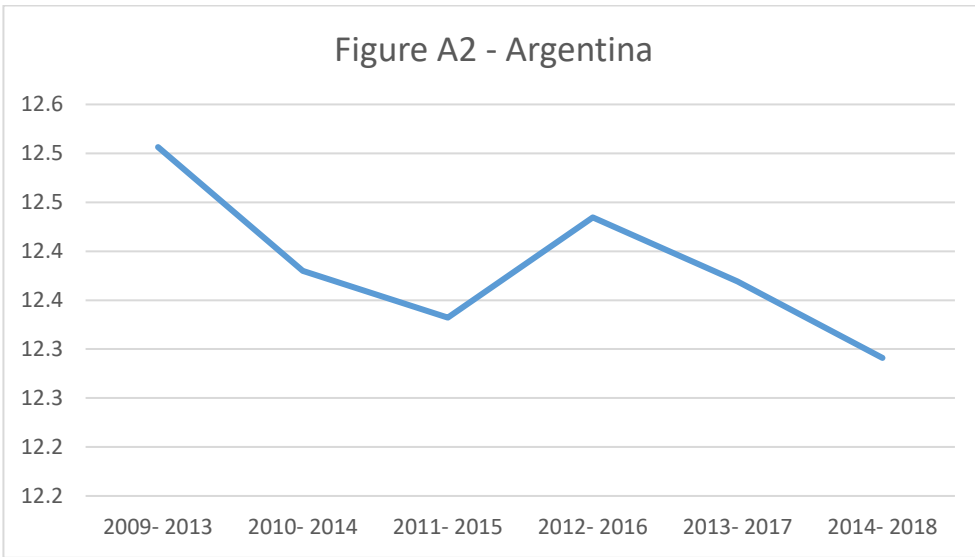


Figure A5 - Belgium

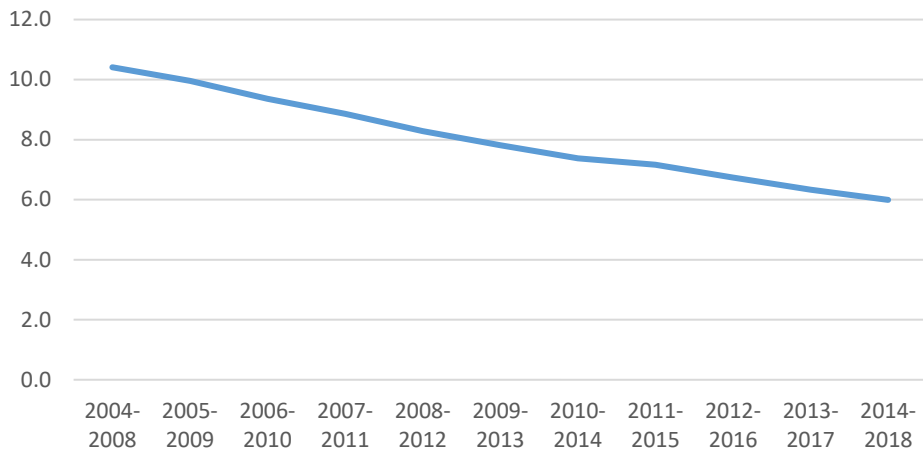


Figure A6 - Bulgaria

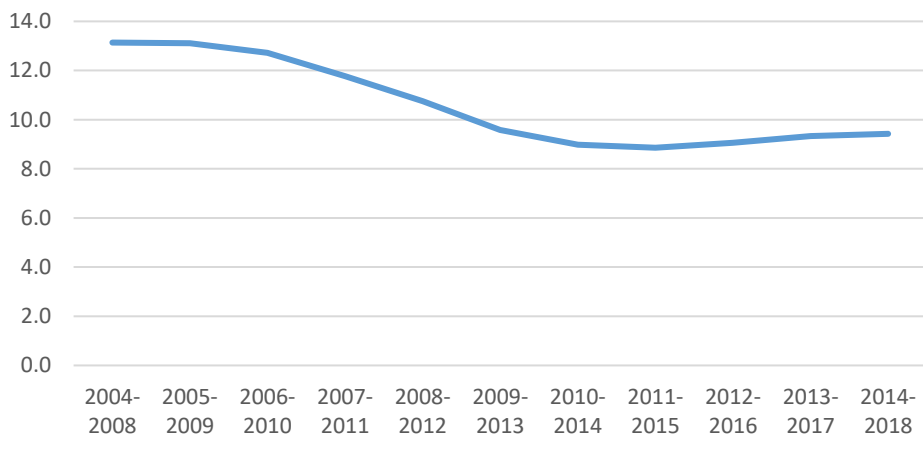


Figure A7 - Canada

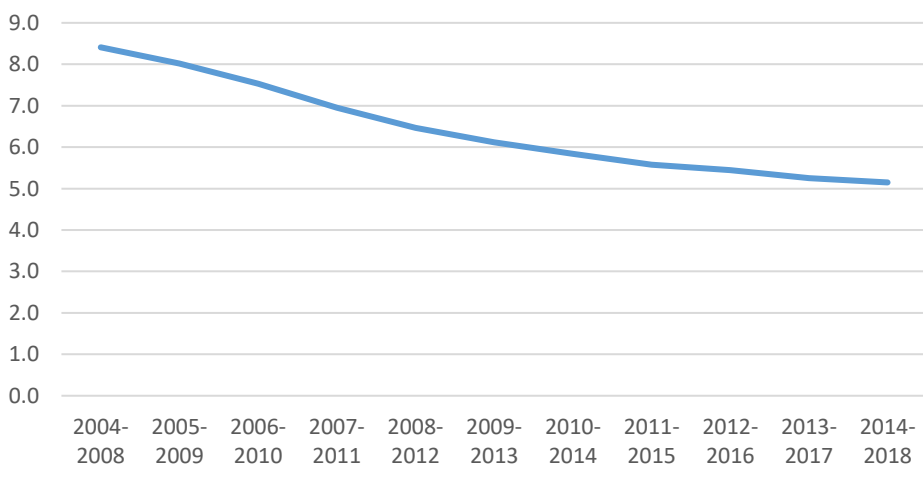


Figure A8 - Chile

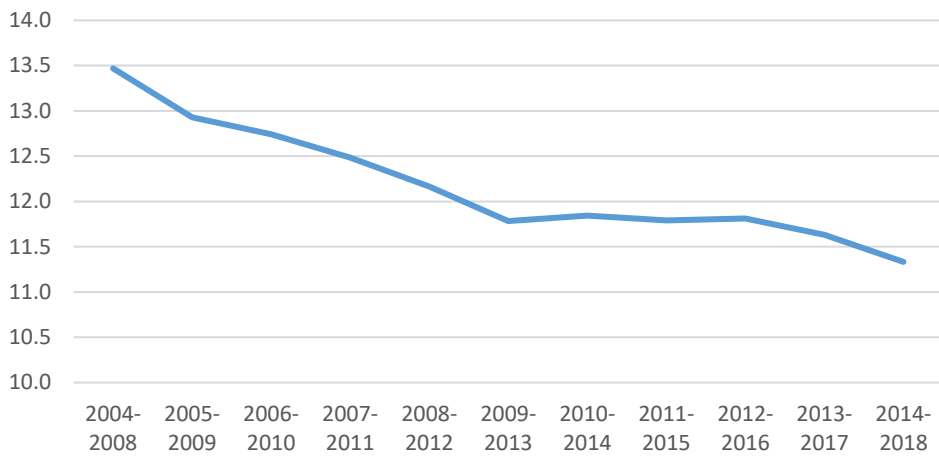


Figure A9 - Croatia

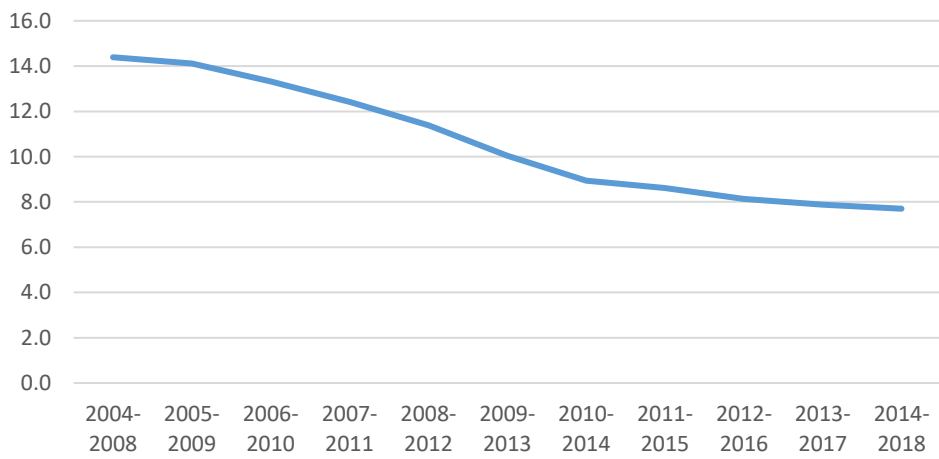


Figure A10 - Cyprus

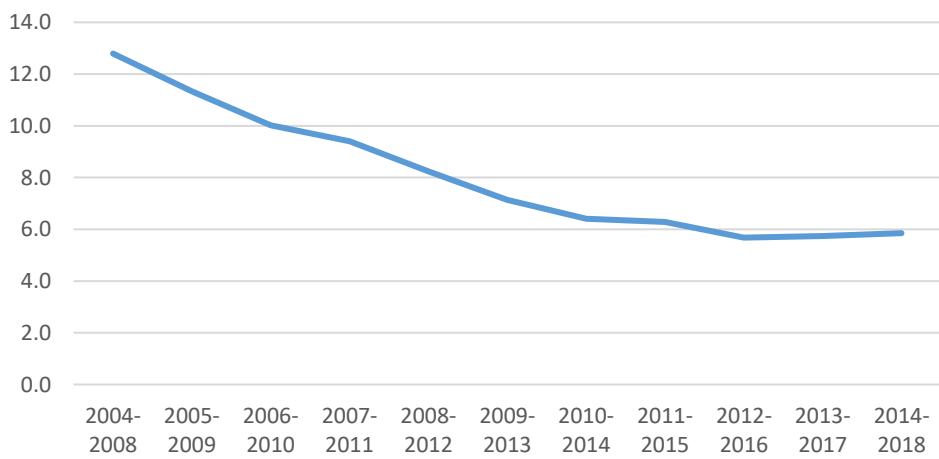


Figure A11 - Czech Republic

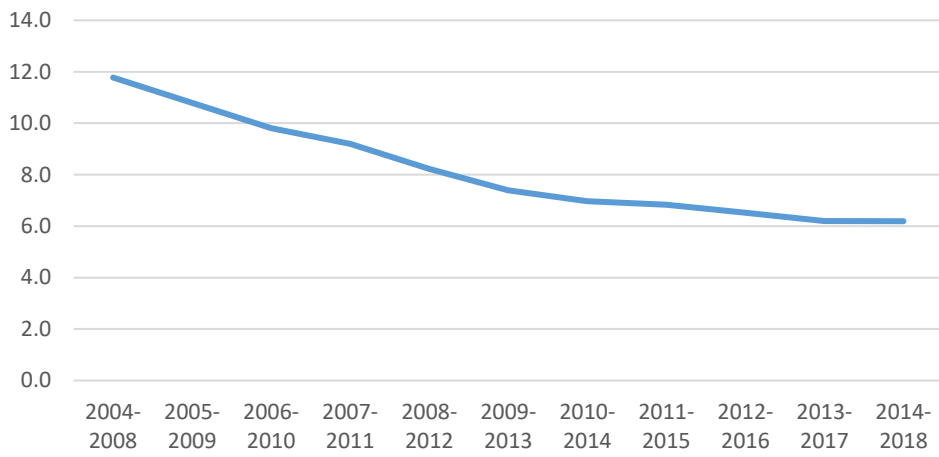


Figure A12 - Denmark

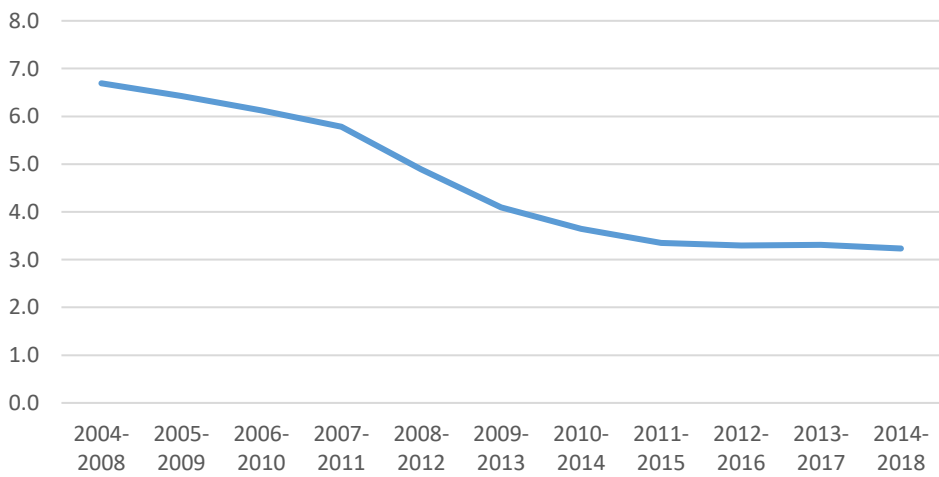


Figure A13 - Estonia

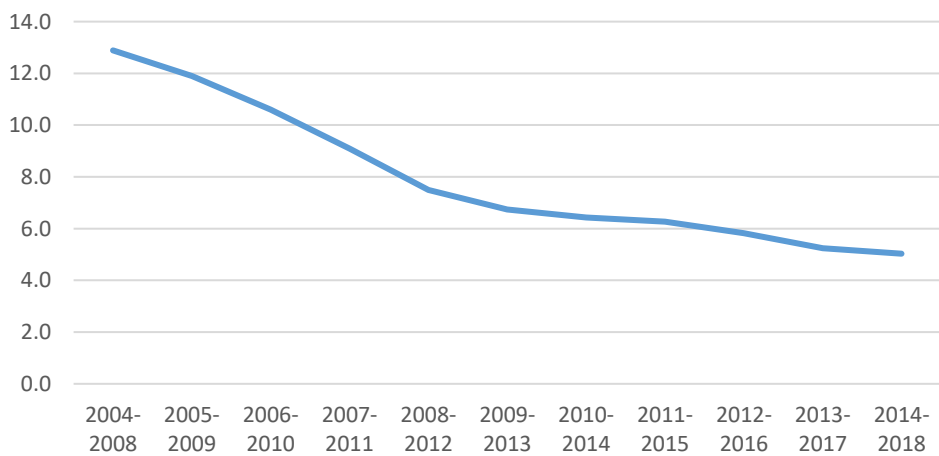


Figure A14 - Finland

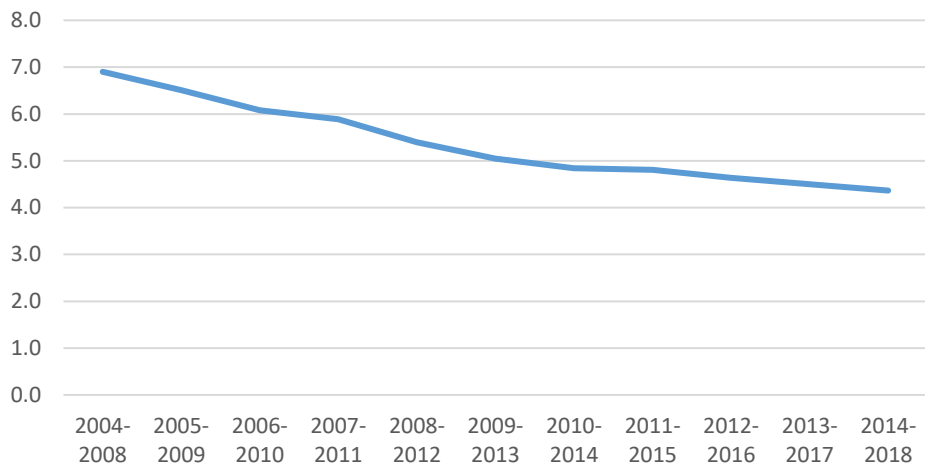


Figure A15 - France

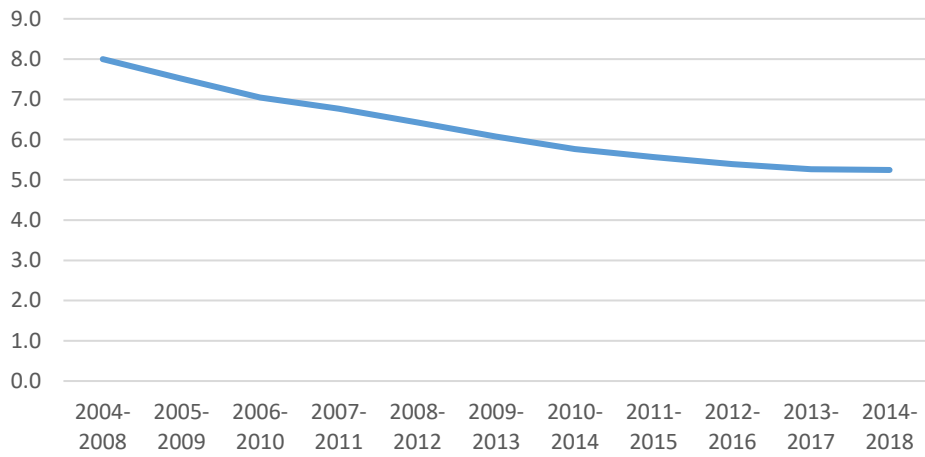


Figure A16 - GB

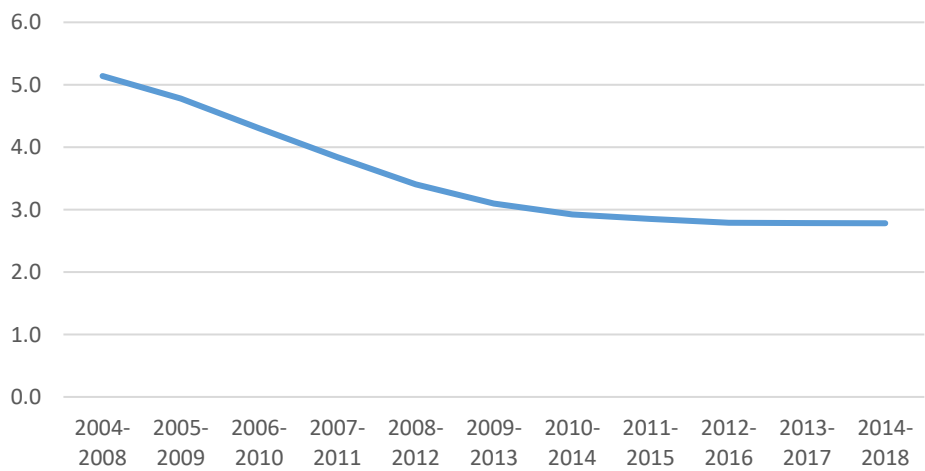


Figure A17 - Germany

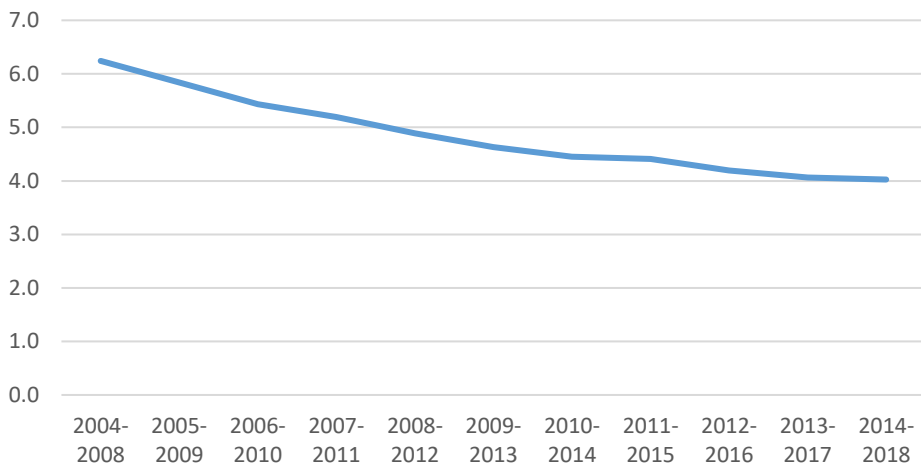


Figure A18 - Greece

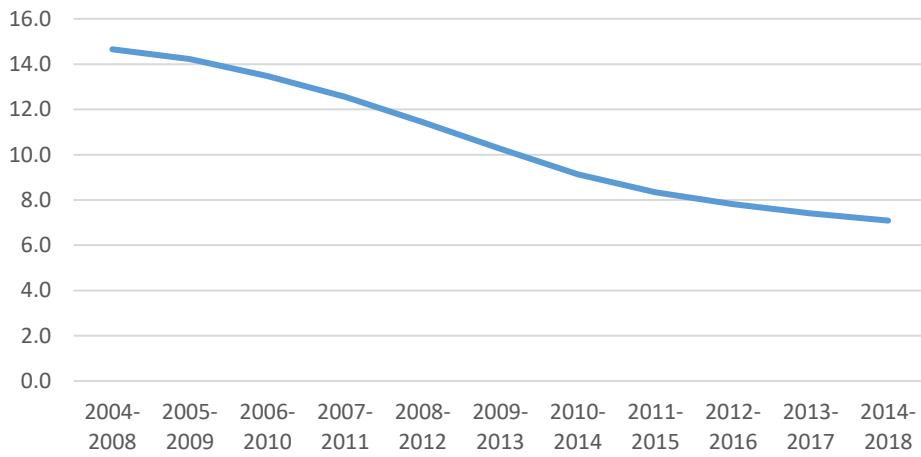


Figure A19 - Hungary

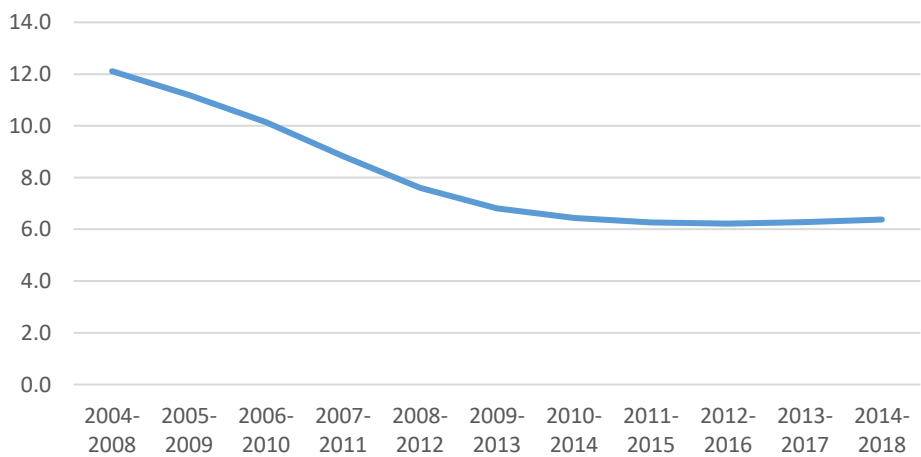


Figure A20 - Iceland

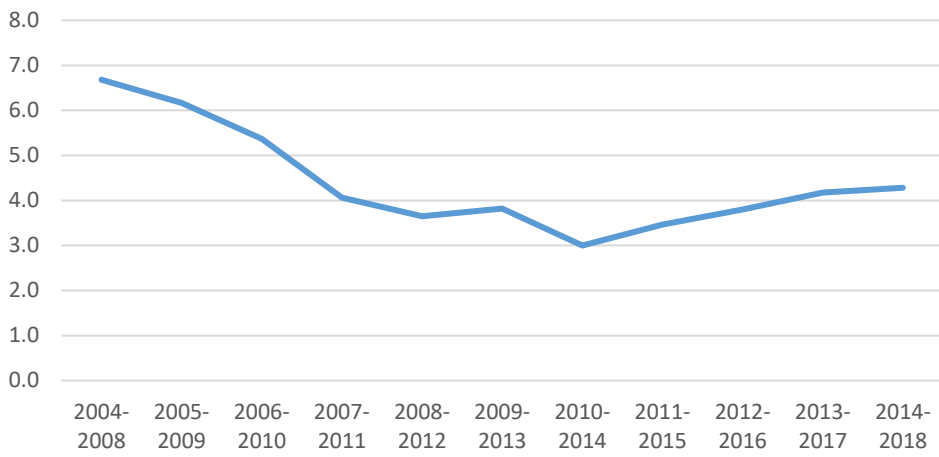


Figure A21 - Ireland

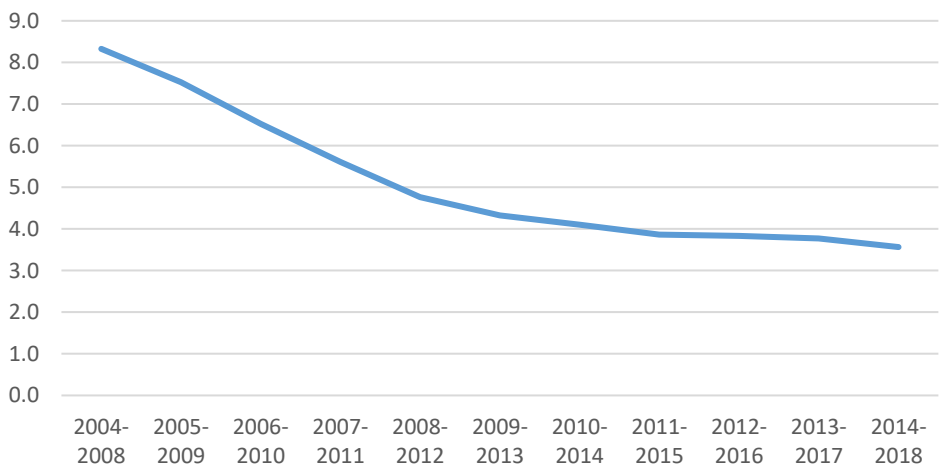


Figure A22 - Israel

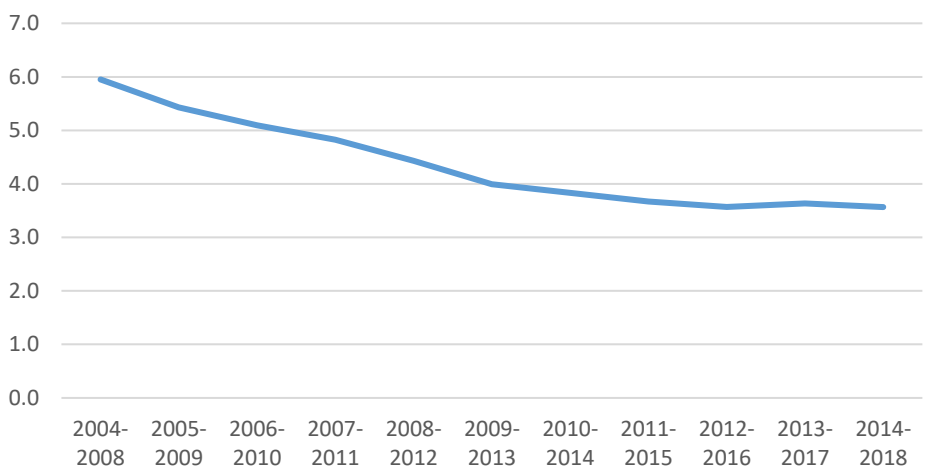


Figure A23 - Italy

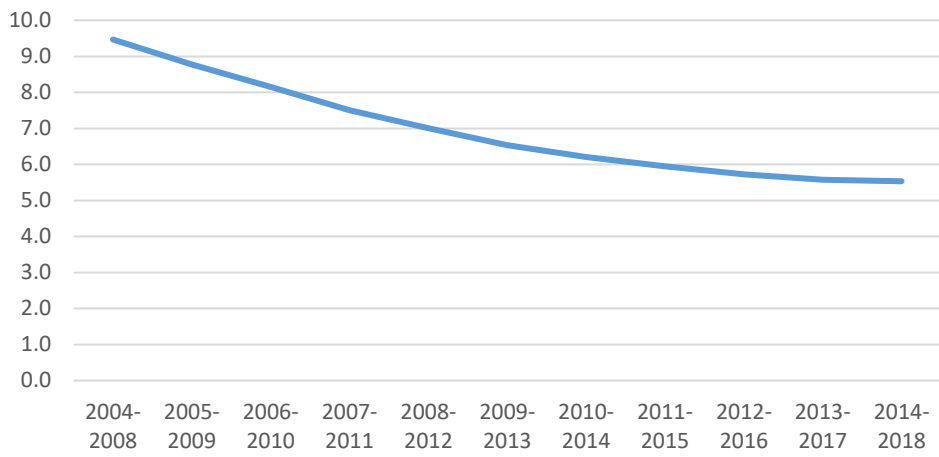


Figure A24 - Japan

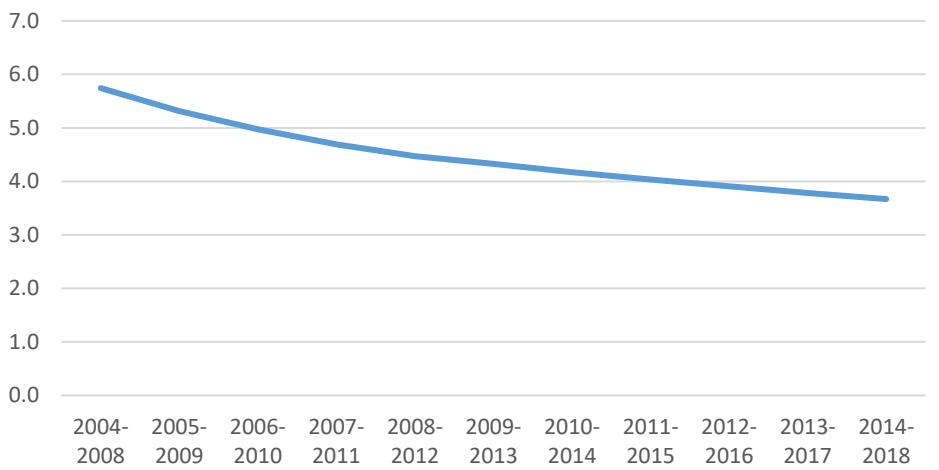


Figure A25 - South Korea

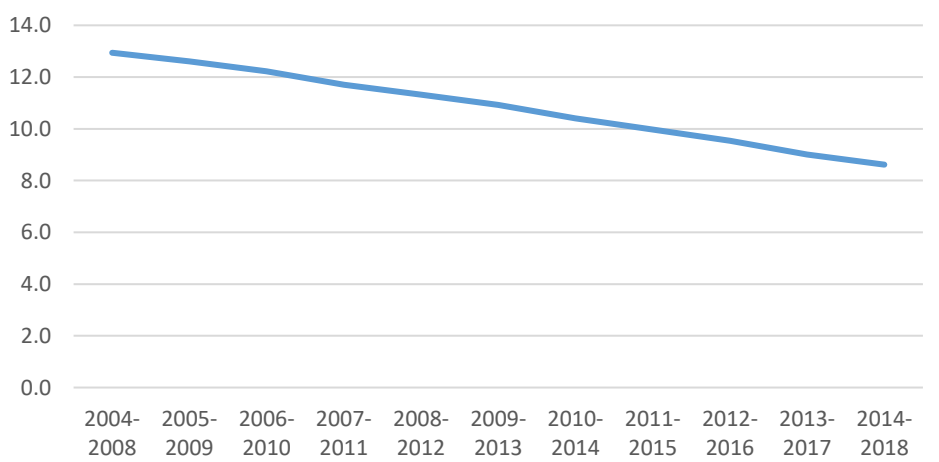


Figure A26 - Latvia

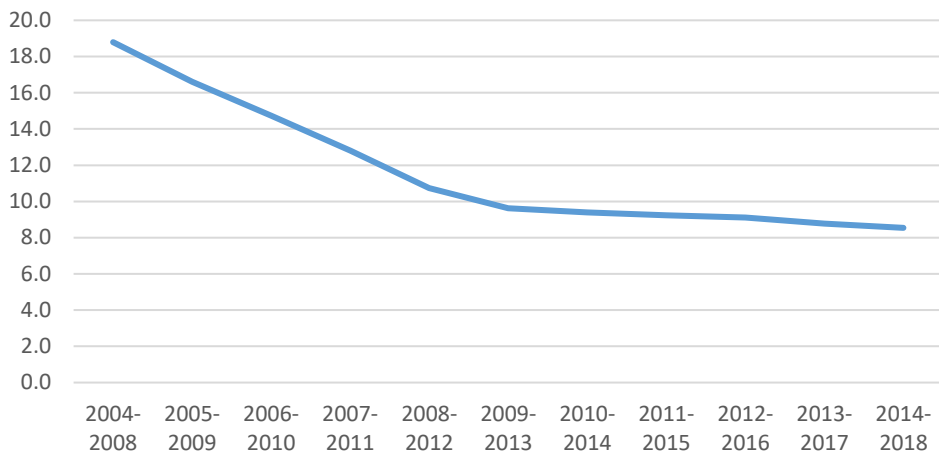


Figure A27 - Lithuania

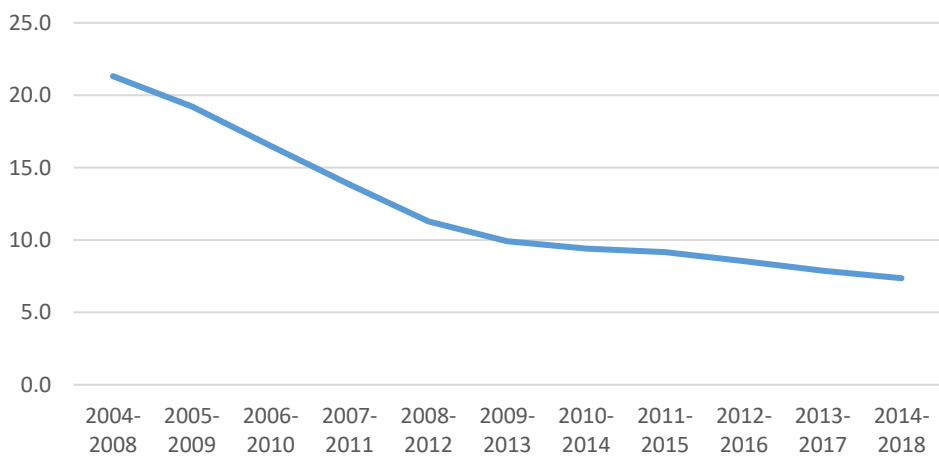


Figure A28 - Luxembourg

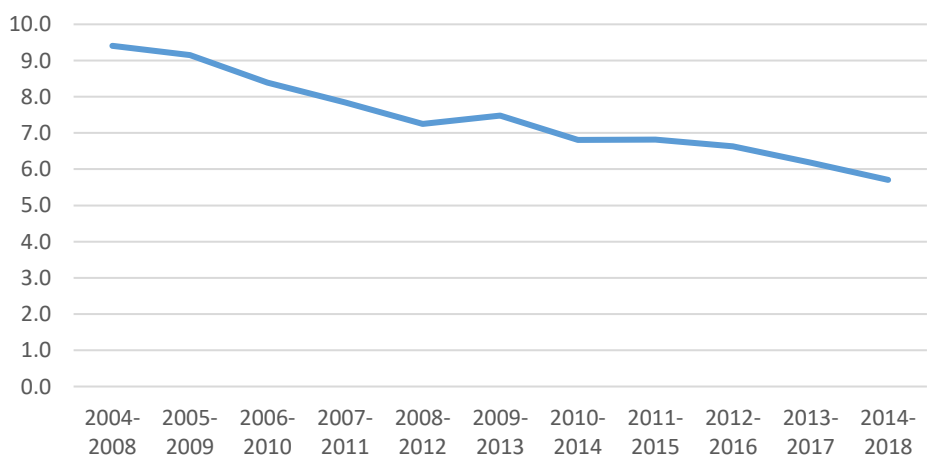


Figure A29 - Malta

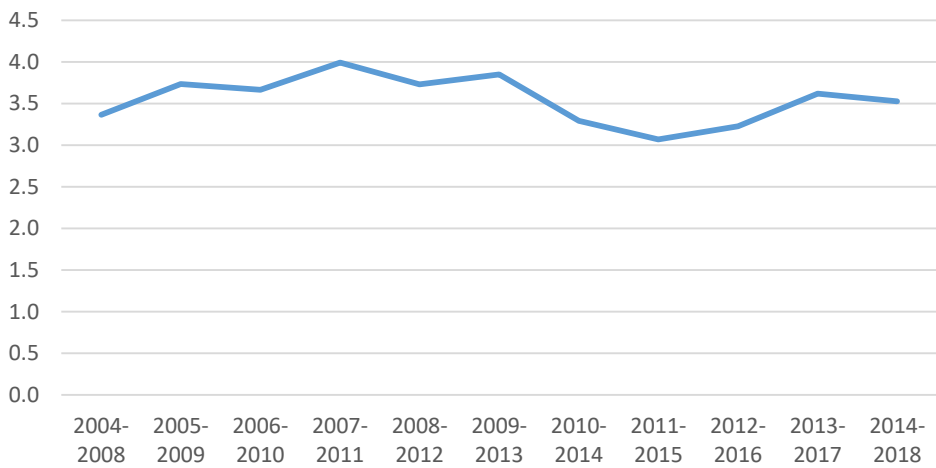


Figure A30 - Netherlands

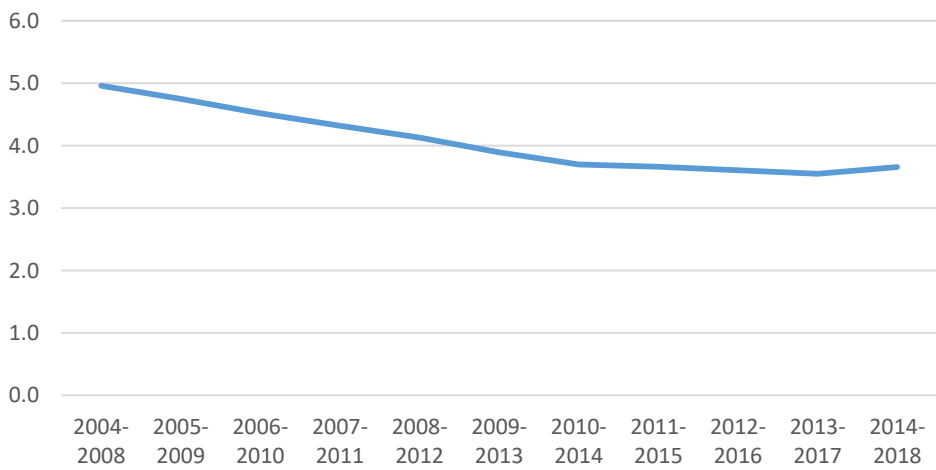


Figure A31 - New Zealand

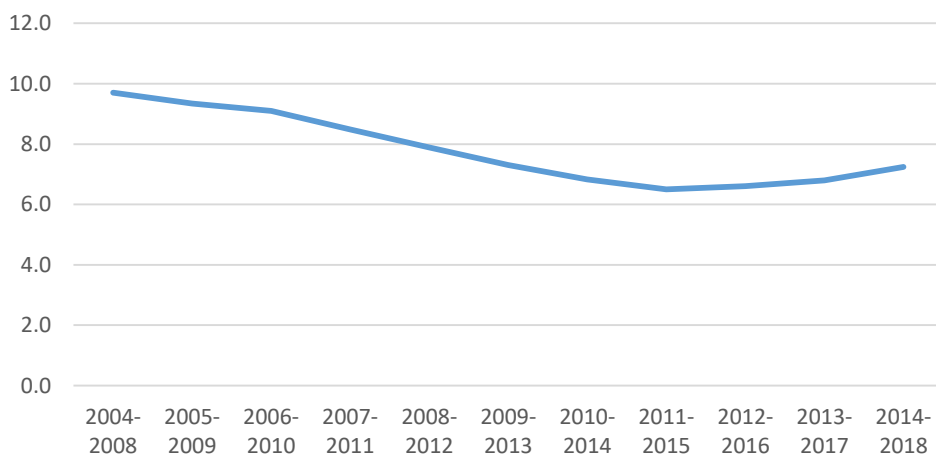


Figure A32 - Northern Ireland

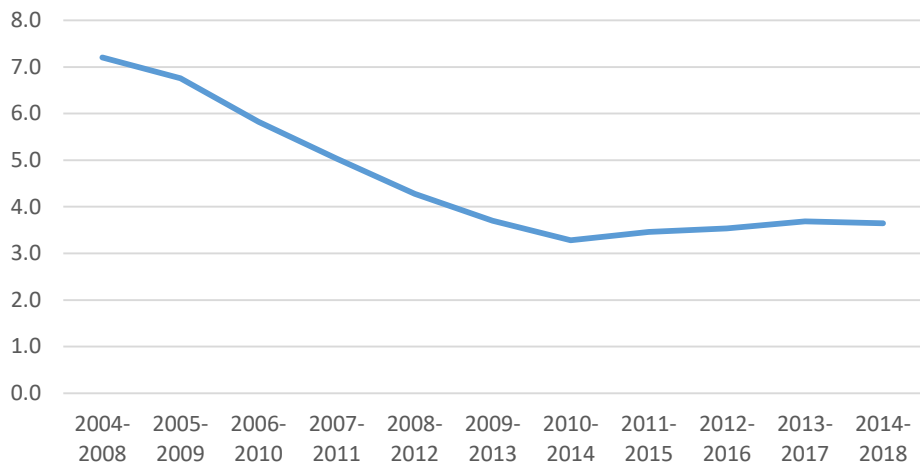


Figure A33 - Norway

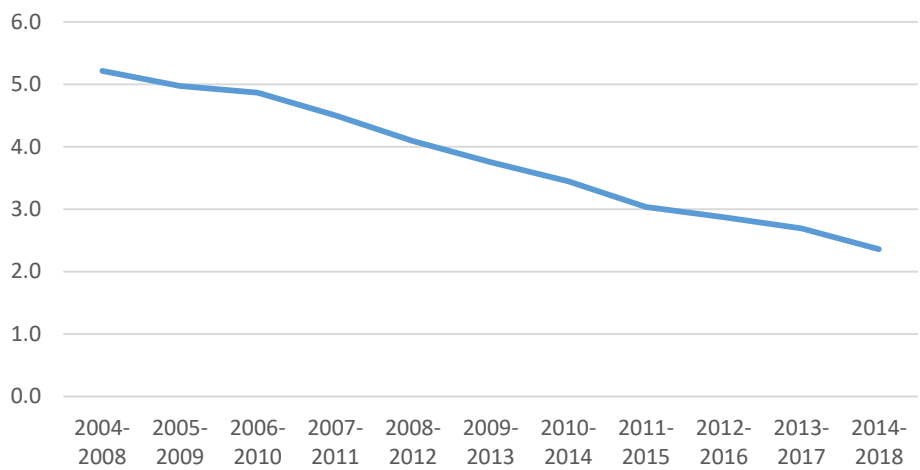


Figure A34 - Poland

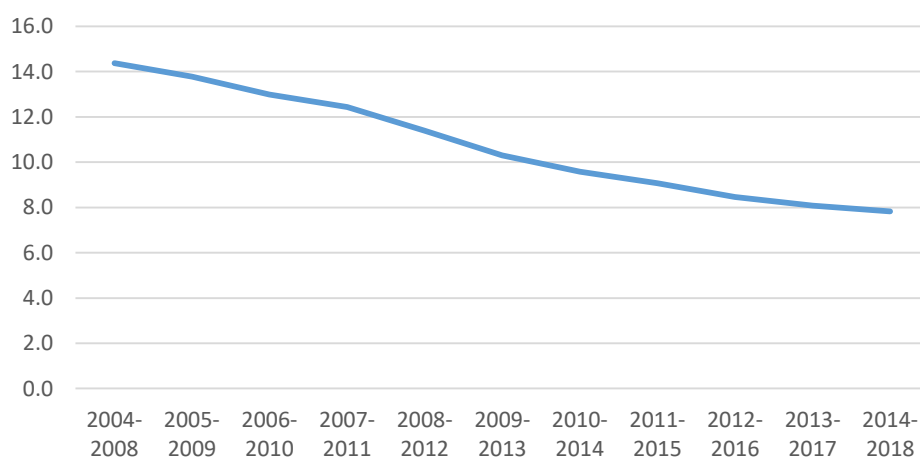


Figure A35 - Portugal

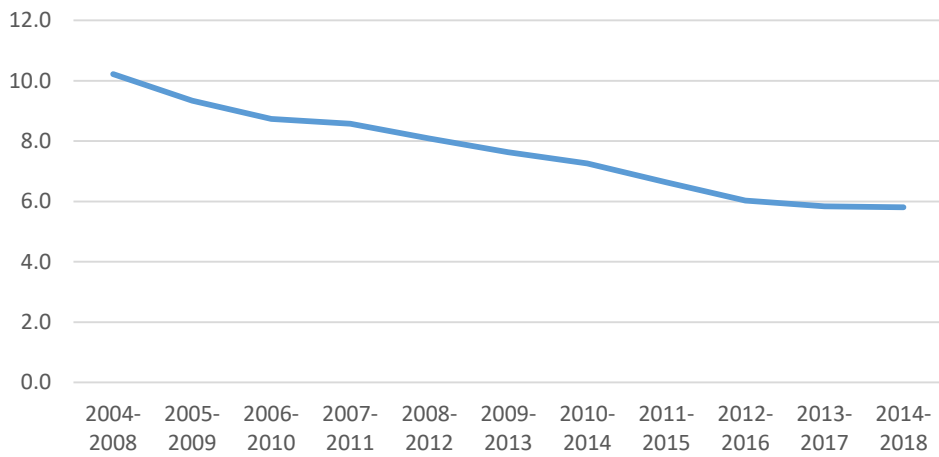


Figure A36 - Romania

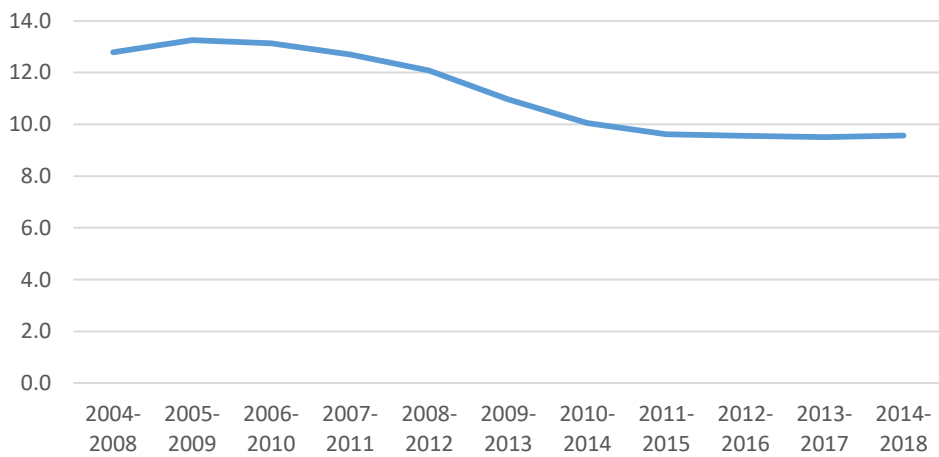


Figure A37 - Serbia

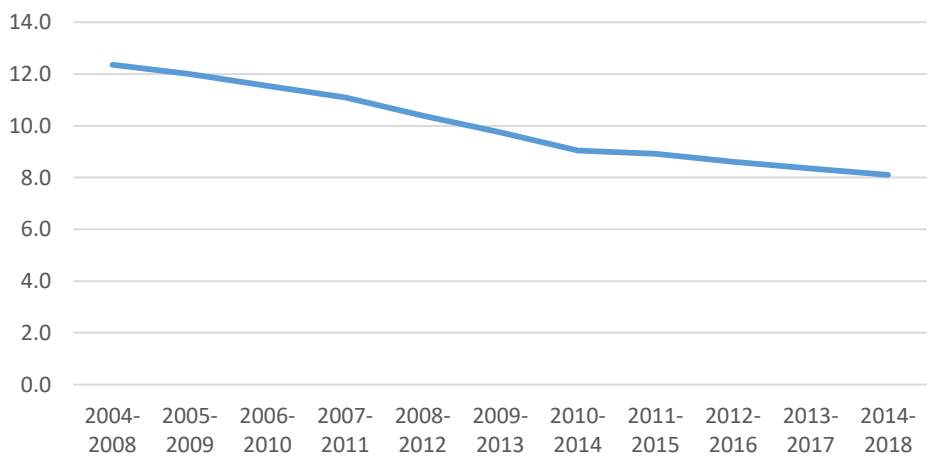


Figure A38 - Slovakia

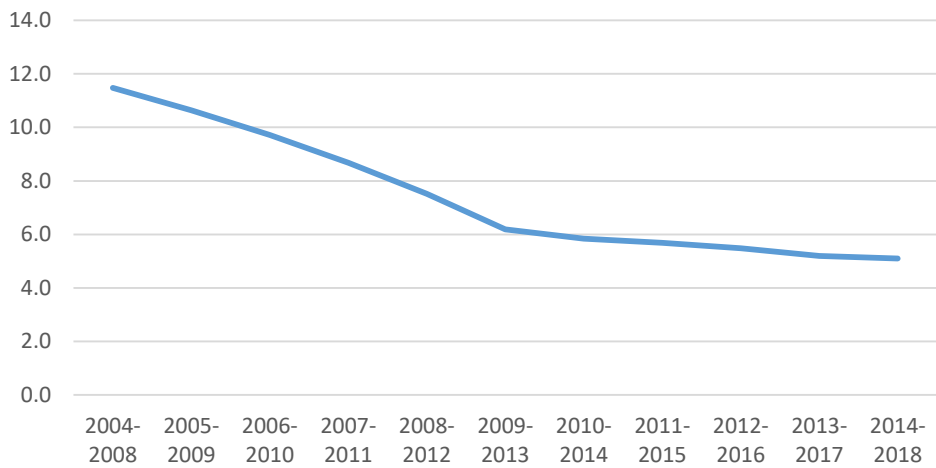


Figure A39 - Slovenia

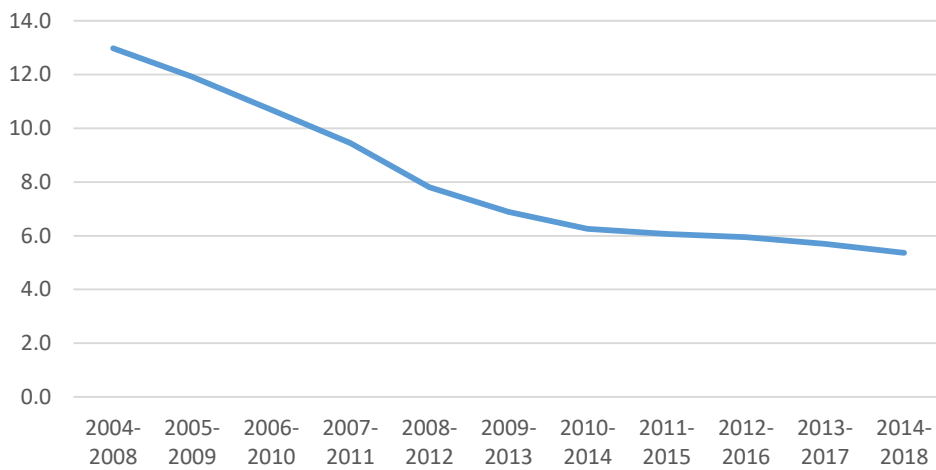


Figure A40 - Spain

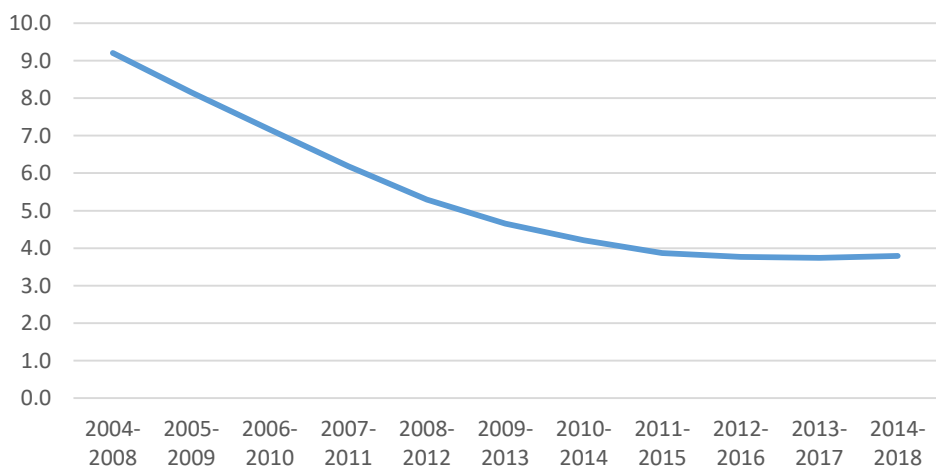


Figure A41 - Sweden

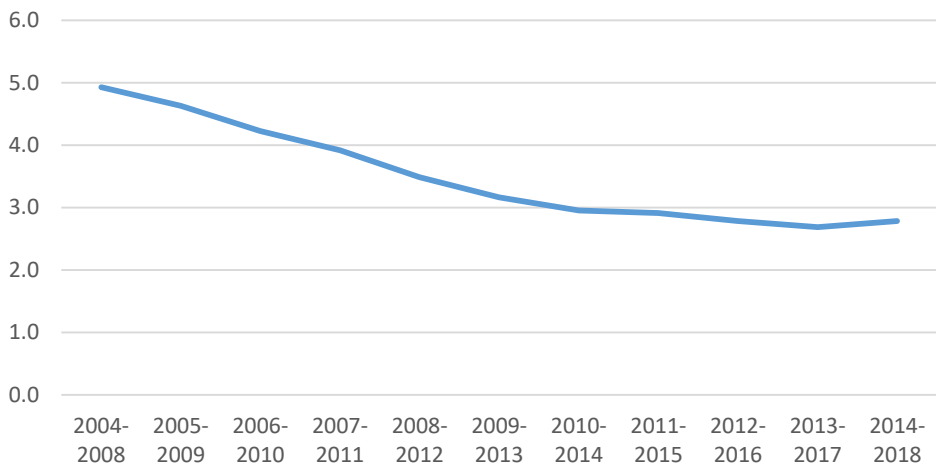


Figure A42 - Switzerland

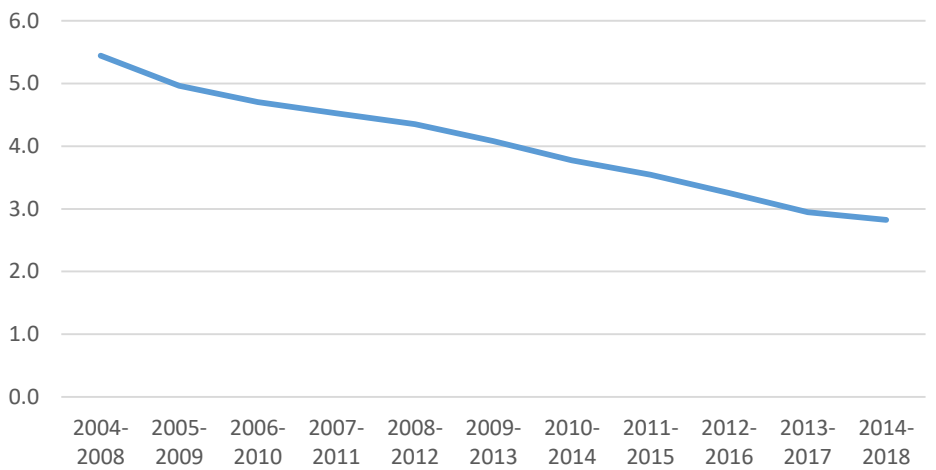


Figure A43- UK

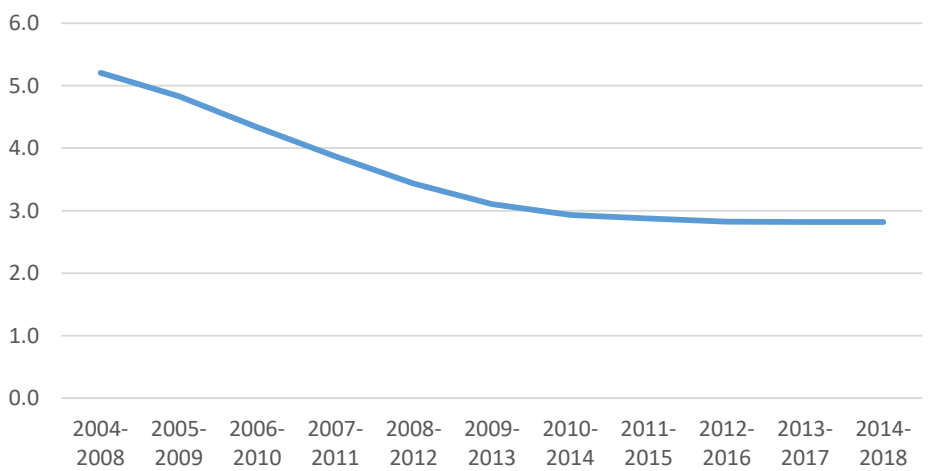


Figure A44 - USA

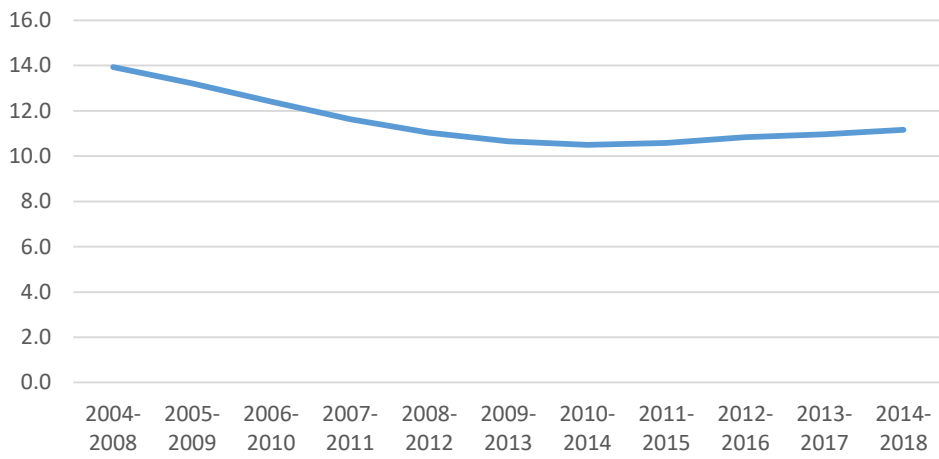


Figure A45 - EU 28

