

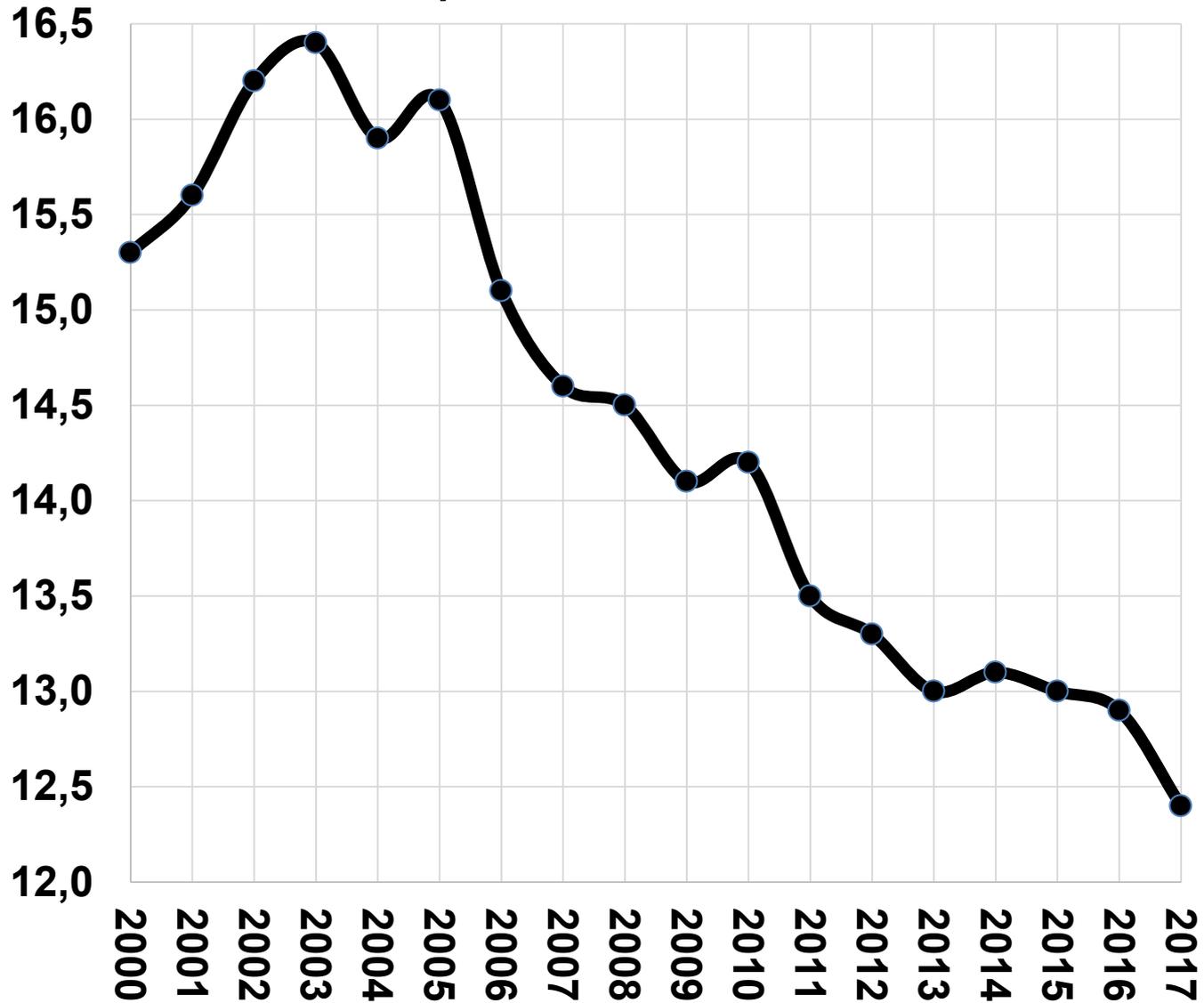


ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ БЮДЖЕТНОЕ УЧРЕЖДЕНИЕ  
ЦЕНТРАЛЬНЫЙ НИИ ОРГАНИЗАЦИИ И  
ИНФОРМАТИЗАЦИИ ЗДРАВООХРАНЕНИЯ  
МИНИСТЕРСТВА ЗДРАВООХРАНЕНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ

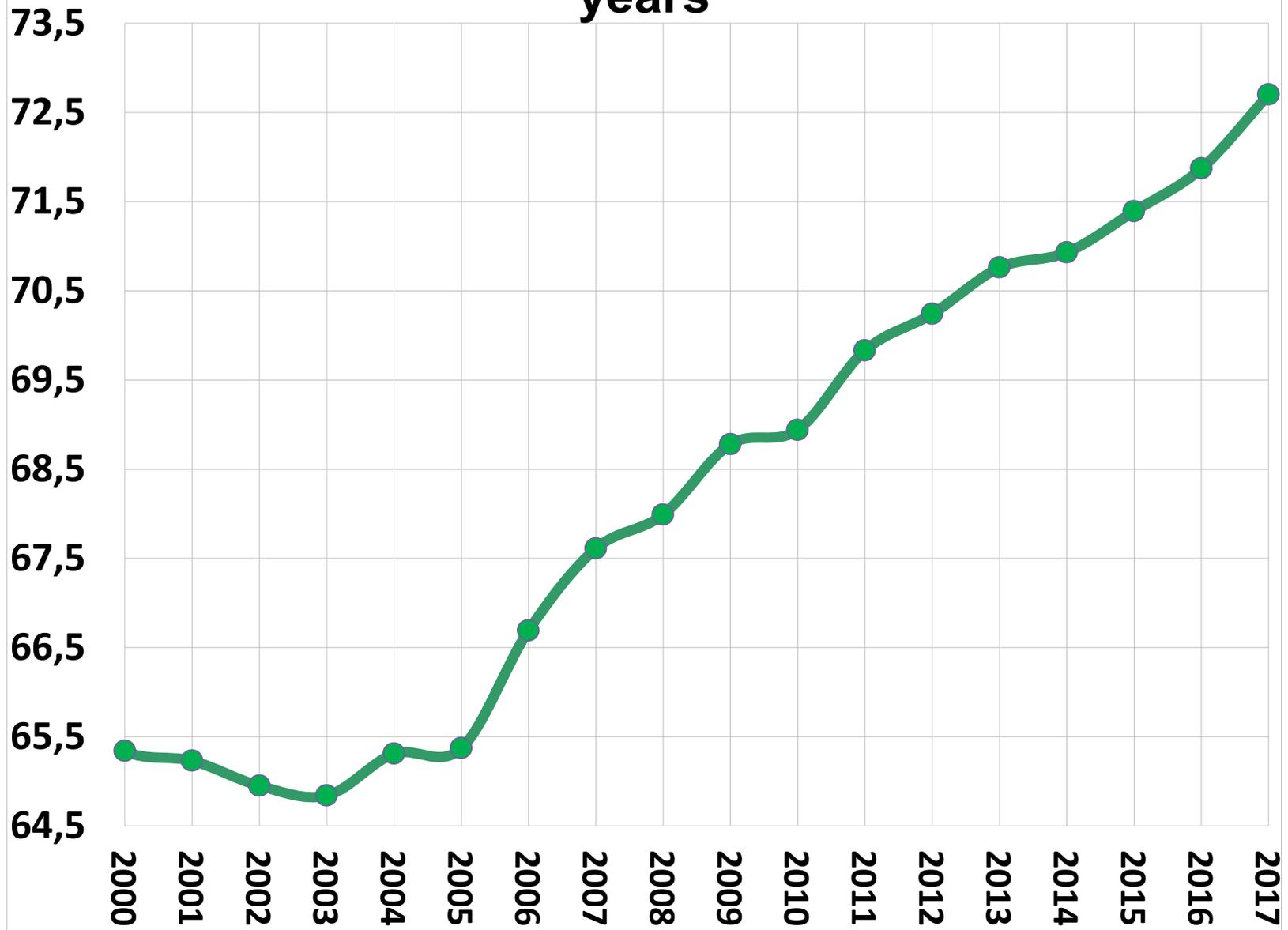
**POTENTIAL OF ALCOHOL POLICY  
TO REDUCE MORTALITY IN  
THE RUSSIAN FEDERATION:  
Mathematical Modeling**

*Andrey Korotayev*

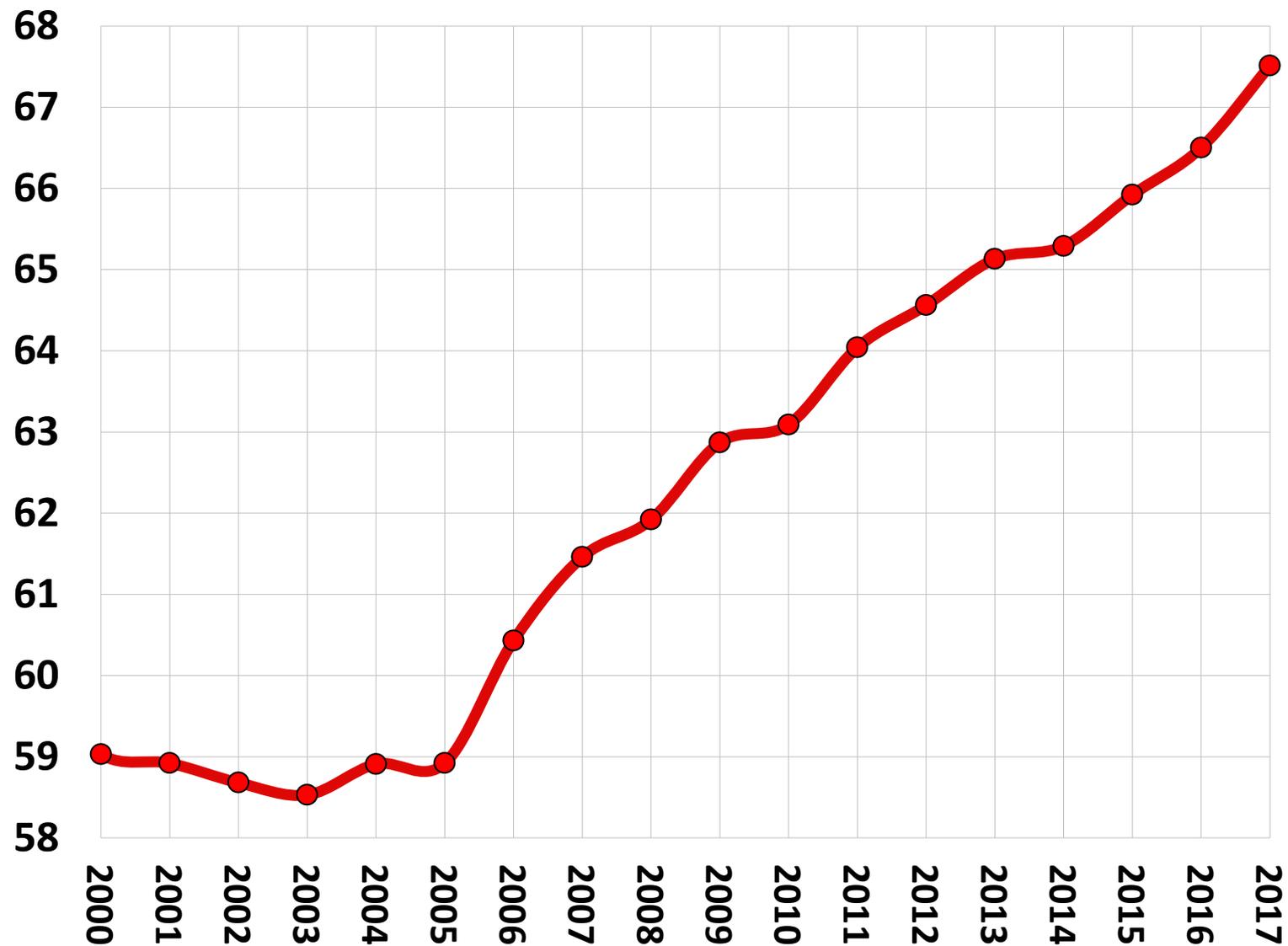
# Crude death rate dynamics (per thousand) in Russia, 2000-2017



# Life expectancy dynamics in Russia, years

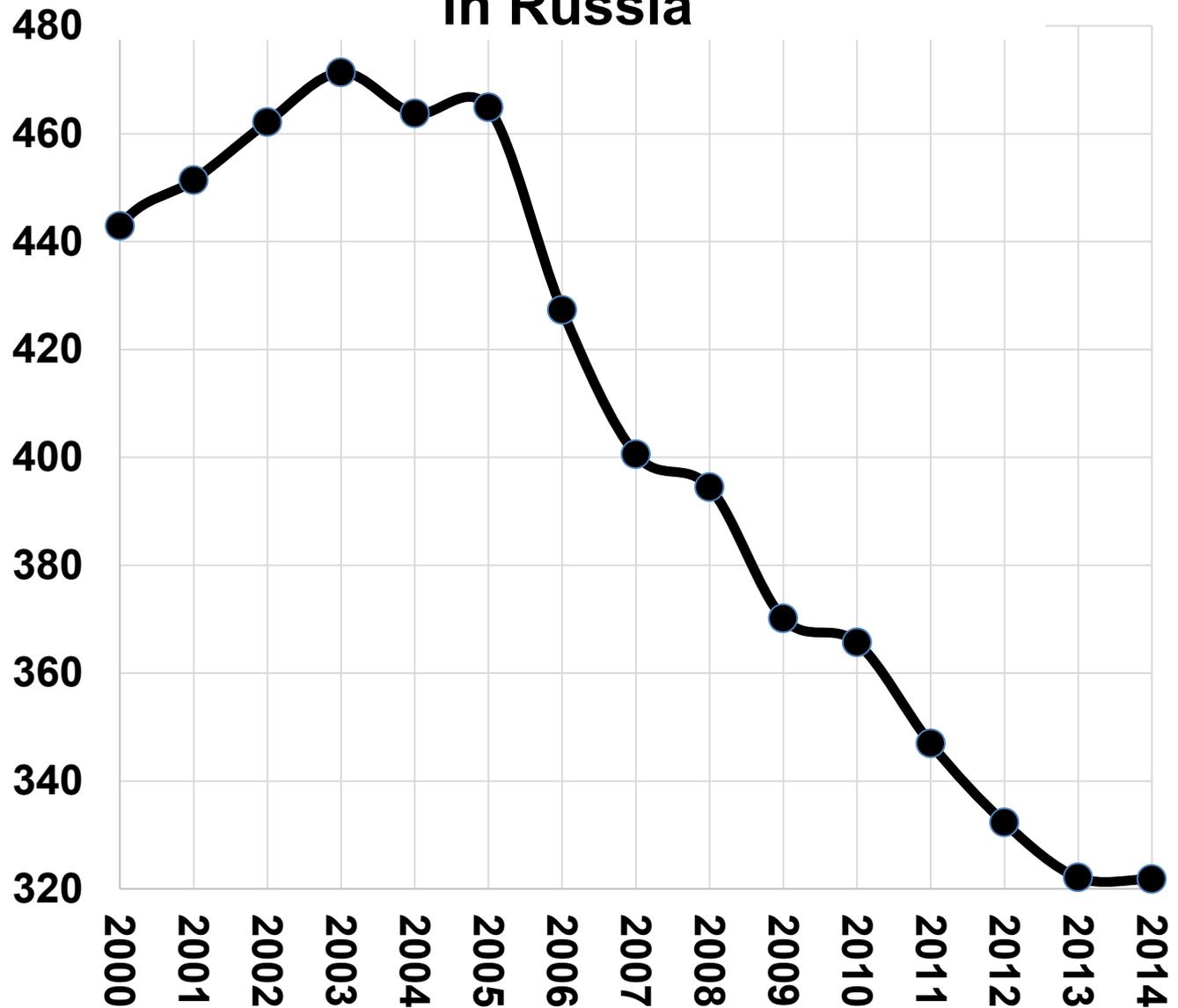


# Male life expectancy dynamics in Russia, years

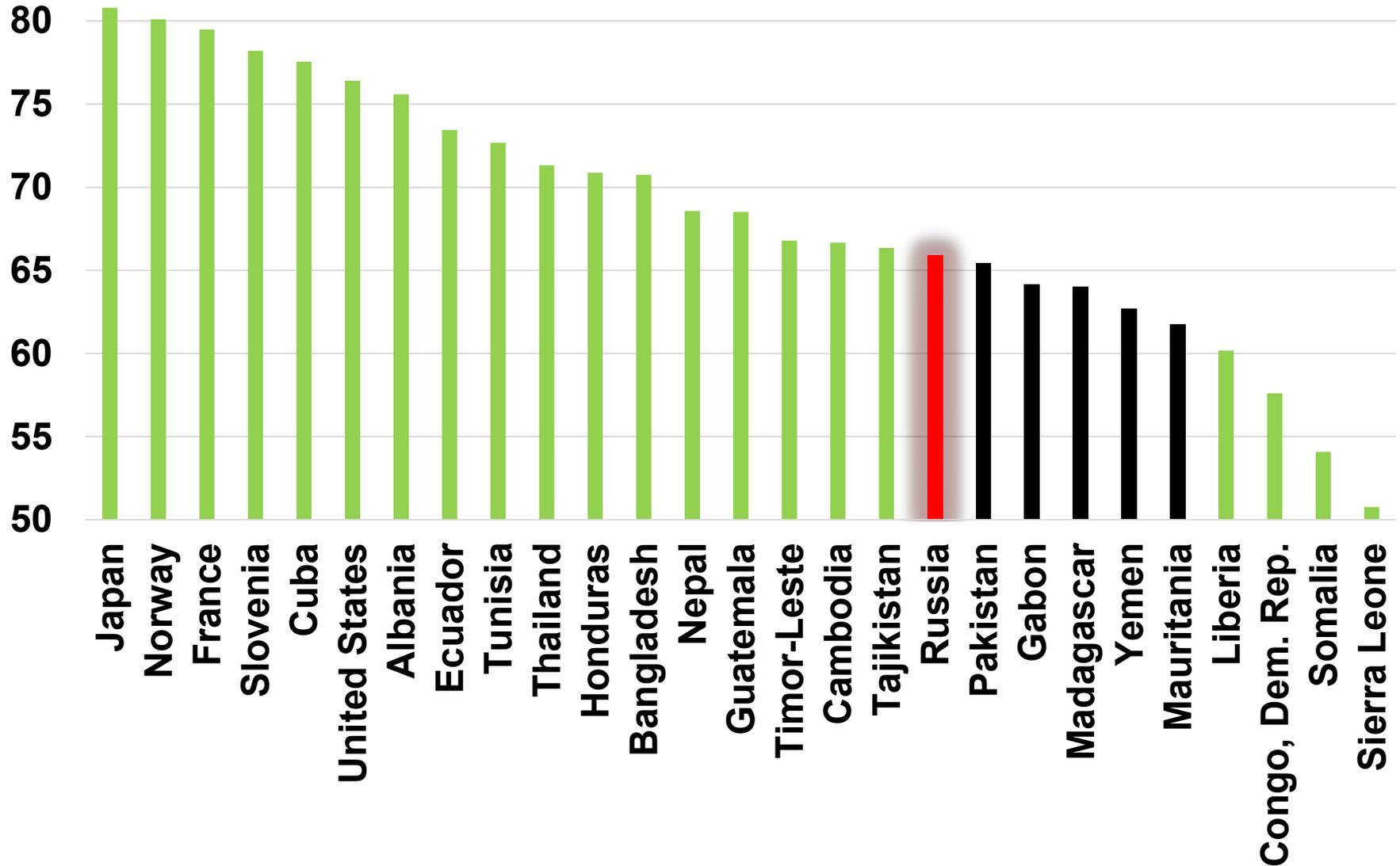


**Adult mortality rate, male**, is the probability of dying between the ages of 15 and 60-- that is, the probability of a 15-year-old male dying before reaching age 60, if subject to age-specific mortality rates of the specified year between those ages.

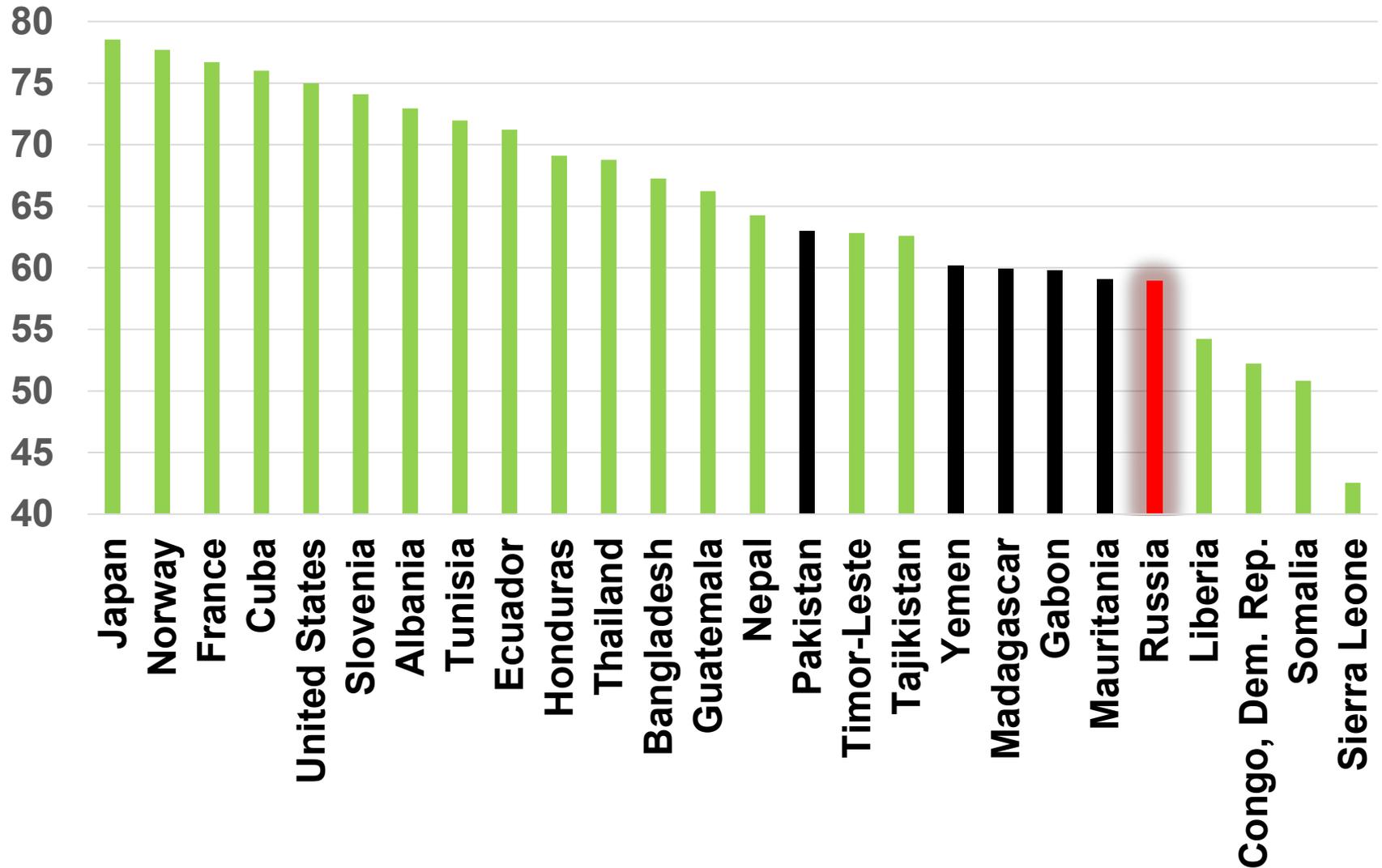
# Adult male mortality rate dynamics in Russia



# Male life expectancy at birth (years) in Russia and some other countries in 2015, the 141<sup>st</sup> place in the world



# Male life expectancy at birth (years) in Russia and some other countries in 2005, the 156<sup>th</sup> place in the world



# Male life expectancy, years

2005 (world = 66,99)

2015 (world = 69,61)

| <i>Place</i> | <i>Country</i> | <i>Value</i> |  | <i>Place</i> | <i>Country</i> | <i>Value</i> |
|--------------|----------------|--------------|--|--------------|----------------|--------------|
| 152          | Yemen          | 60,2         |  | 137          | Cambodia       | 66,7         |
| 153          | Madagascar     | 59,9         |  | 138          | Ukraine        | 66,4         |
| 154          | Gabon          | 59,8         |  | 139          | Tajikistan     | 66,3         |
| 155          | Mauritania     | 59,1         |  | 140          | Bolivia        | 66,3         |

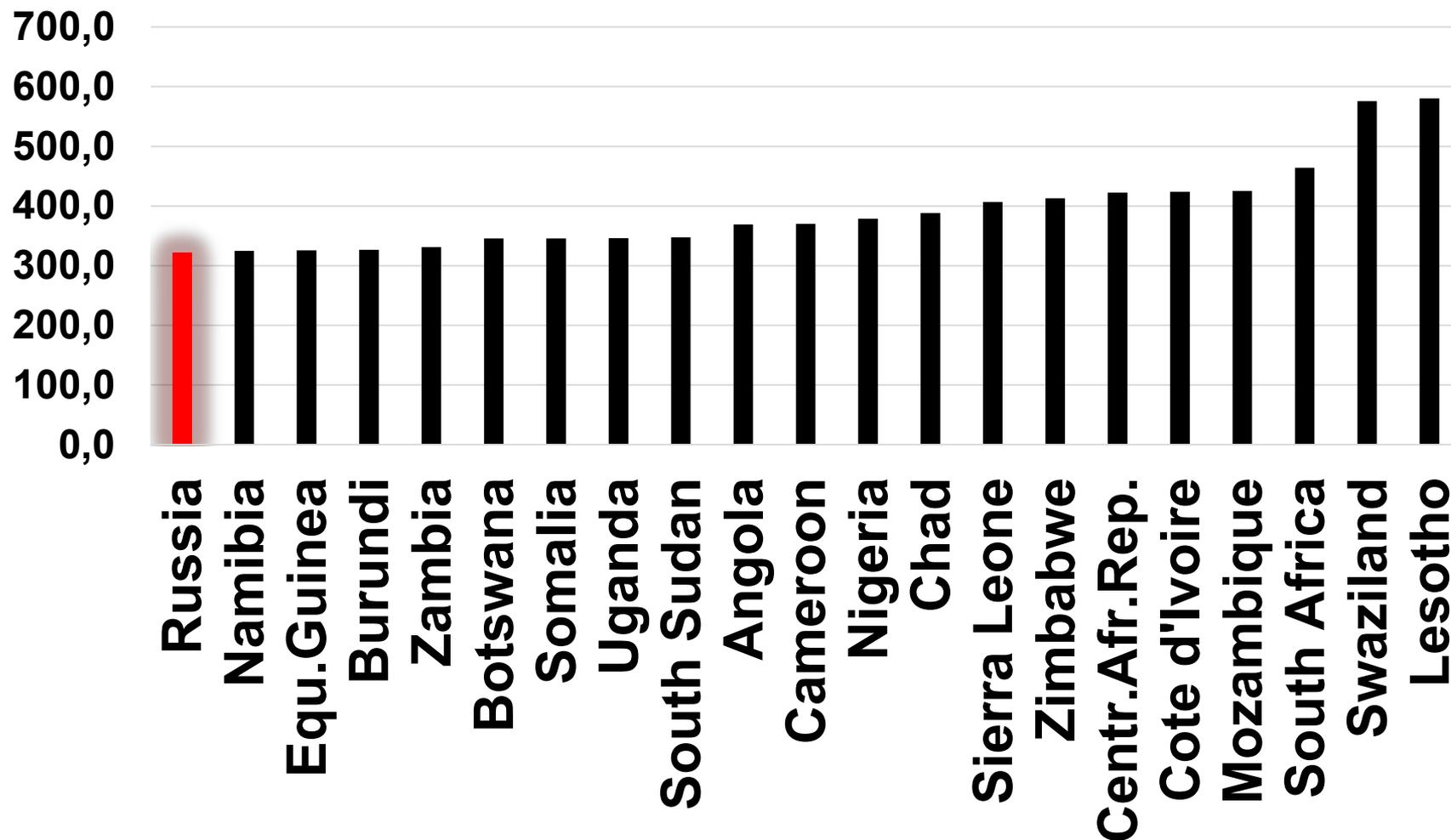
**156 Russia 58,9**

**141 Russia 65,9**

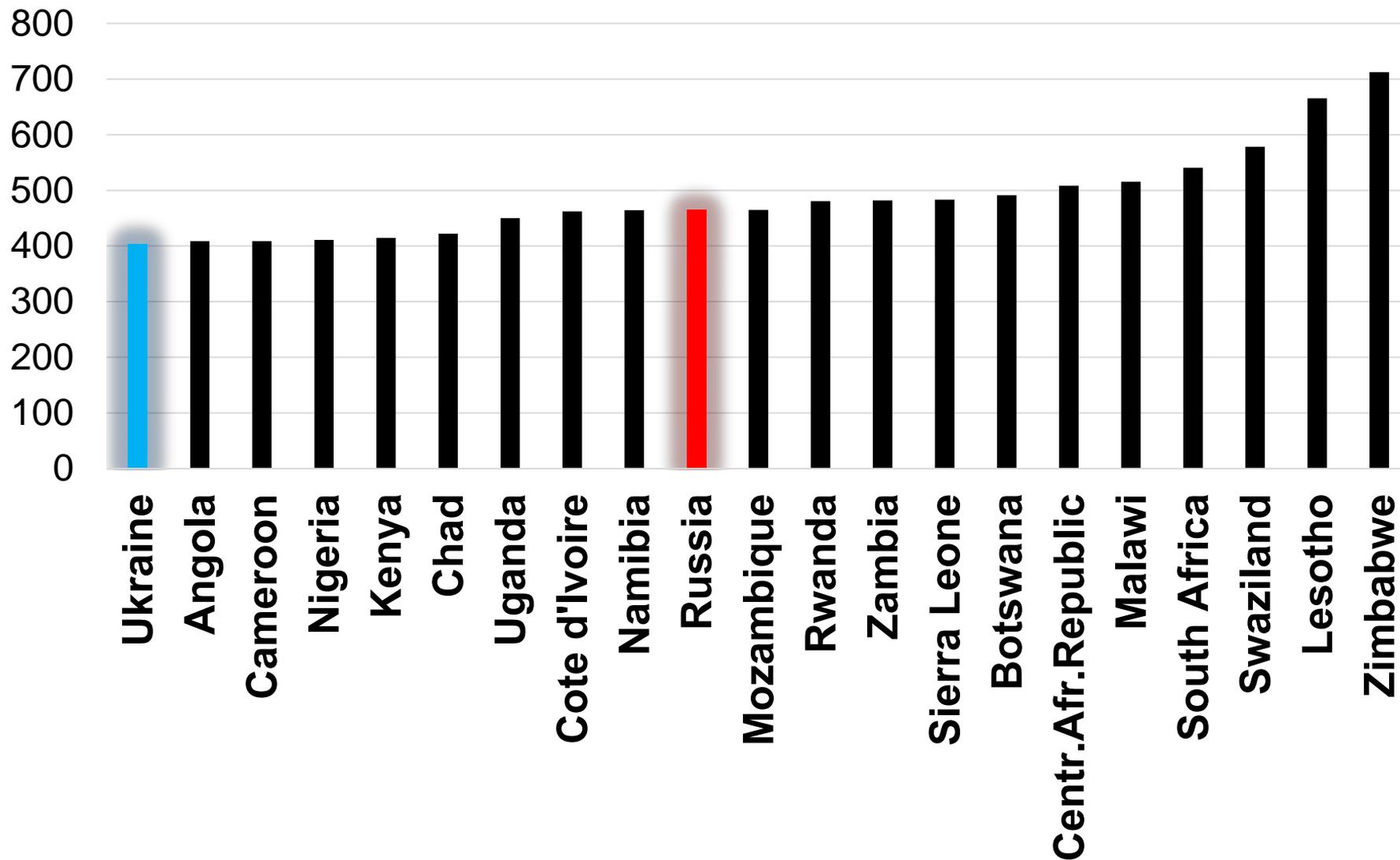
|     |          |      |  |     |             |      |
|-----|----------|------|--|-----|-------------|------|
| 157 | Senegal  | 58,9 |  | 142 | Mongolia    | 65,6 |
| 158 | Papua NG | 58,6 |  | 143 | Pakistan    | 65,4 |
| 159 | Comoros  | 58,5 |  | 144 | Laos        | 65,2 |
| 160 | Sudan    | 58,1 |  | 145 | Uzbekistan  | 65,1 |
| 161 | Ghana    | 57,9 |  | 146 | Philippines | 65,0 |
| 162 | Haiti    | 57,8 |  | 147 | Senegal     | 64,9 |

**Adult mortality rate, male**, is the probability of dying between the ages of 15 and 60-- that is, the probability of a 15-year-old male dying before reaching age 60, if subject to age-specific mortality rates of the specified year between those ages.

# Countries with the highest adult male mortality rates in 2014, the 175<sup>th</sup> place in the world



# Countries with the highest adult male mortality rates in 2005, the 185<sup>th</sup> place in the world



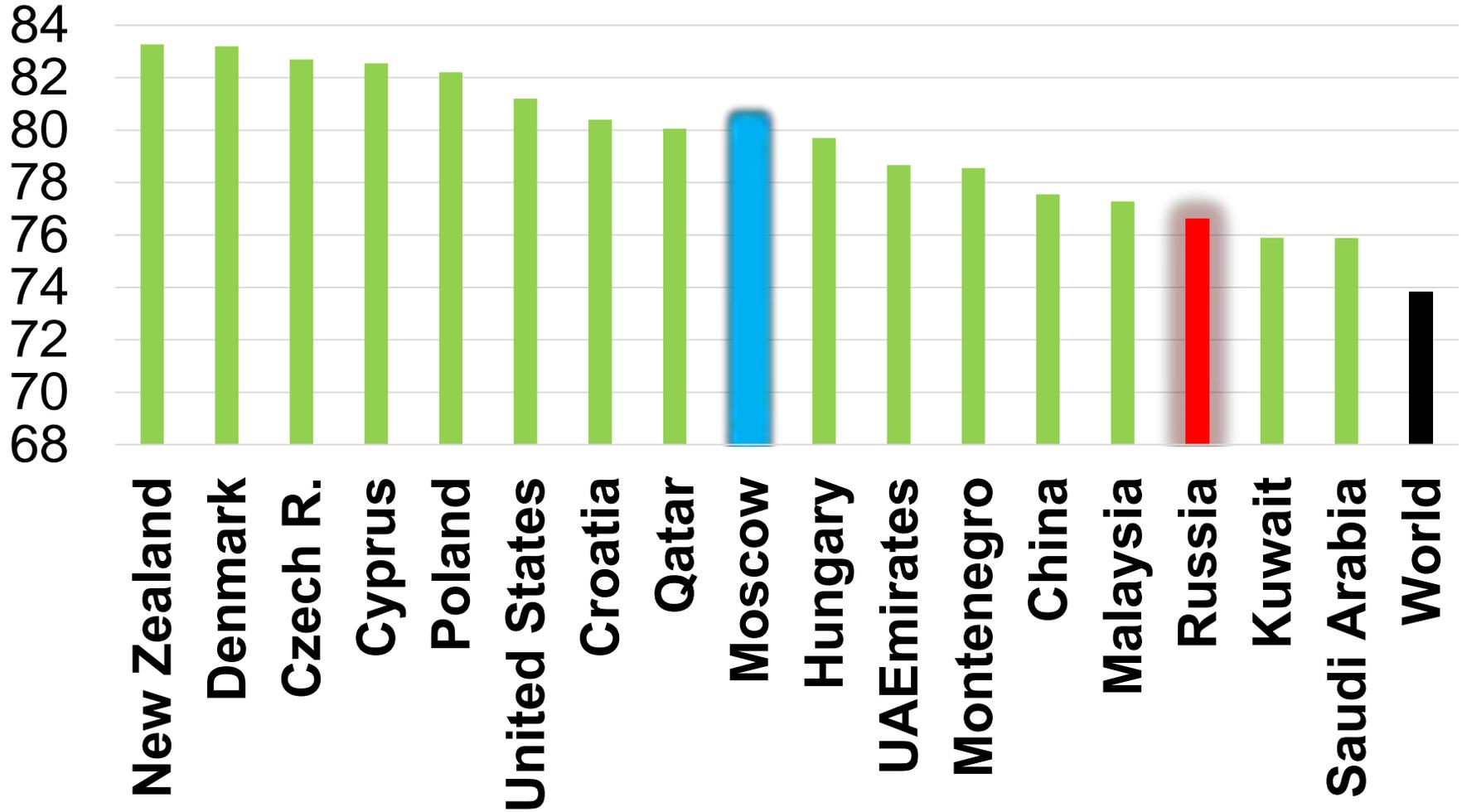
## Global adult male mortality rate rating in 2014, positions 166–175

| <i>Place</i> | <i>Country</i>          | <i>Mortality rate</i> |
|--------------|-------------------------|-----------------------|
| <b>166</b>   | <b>Ukraine</b>          | 292,1                 |
| <b>167</b>   | <b>Eritrea</b>          | 295,4                 |
| <b>168</b>   | <b>Kenya</b>            | 295,9                 |
| <b>169</b>   | <b>Rwanda</b>           | 296,4                 |
| <b>170</b>   | <b>Turkmenistan</b>     | 297,2                 |
| <b>171</b>   | <b>Mongolia</b>         | 299,6                 |
| <b>172</b>   | <b>Kazakhstan</b>       | 302,3                 |
| <b>173</b>   | <b>Guinea-Bissau</b>    | 306,5                 |
| <b>174</b>   | <b>Papua New Guinea</b> | 313,2                 |
| <b>175</b>   | <b>Russia</b>           | 321,8                 |

## Some countries of the world with adult male mortality rates lower than in Russia, 2014

| <i>Place</i> | <i>Country</i>          | <i>Mortality rate</i> |
|--------------|-------------------------|-----------------------|
| <b>150</b>   | <b>Liberia</b>          | <b>269,2</b>          |
| <b>154</b>   | <b>Haiti</b>            | <b>276,5</b>          |
| <b>156</b>   | <b>Burkina Faso</b>     | <b>279,0</b>          |
| <b>157</b>   | <b>Malawi</b>           | <b>279,4</b>          |
| <b>159</b>   | <b>Afghanistan</b>      | <b>281,3</b>          |
| <b>160</b>   | <b>Syria</b>            | <b>282,6</b>          |
| <b>161</b>   | <b>Guinea</b>           | <b>284,6</b>          |
| <b>164</b>   | <b>Congo, Dem. Rep.</b> | <b>289,7</b>          |
| <b>167</b>   | <b>Eritrea</b>          | <b>295,4</b>          |
| <b>175</b>   | <b>Russia</b>           | <b>321,8</b>          |

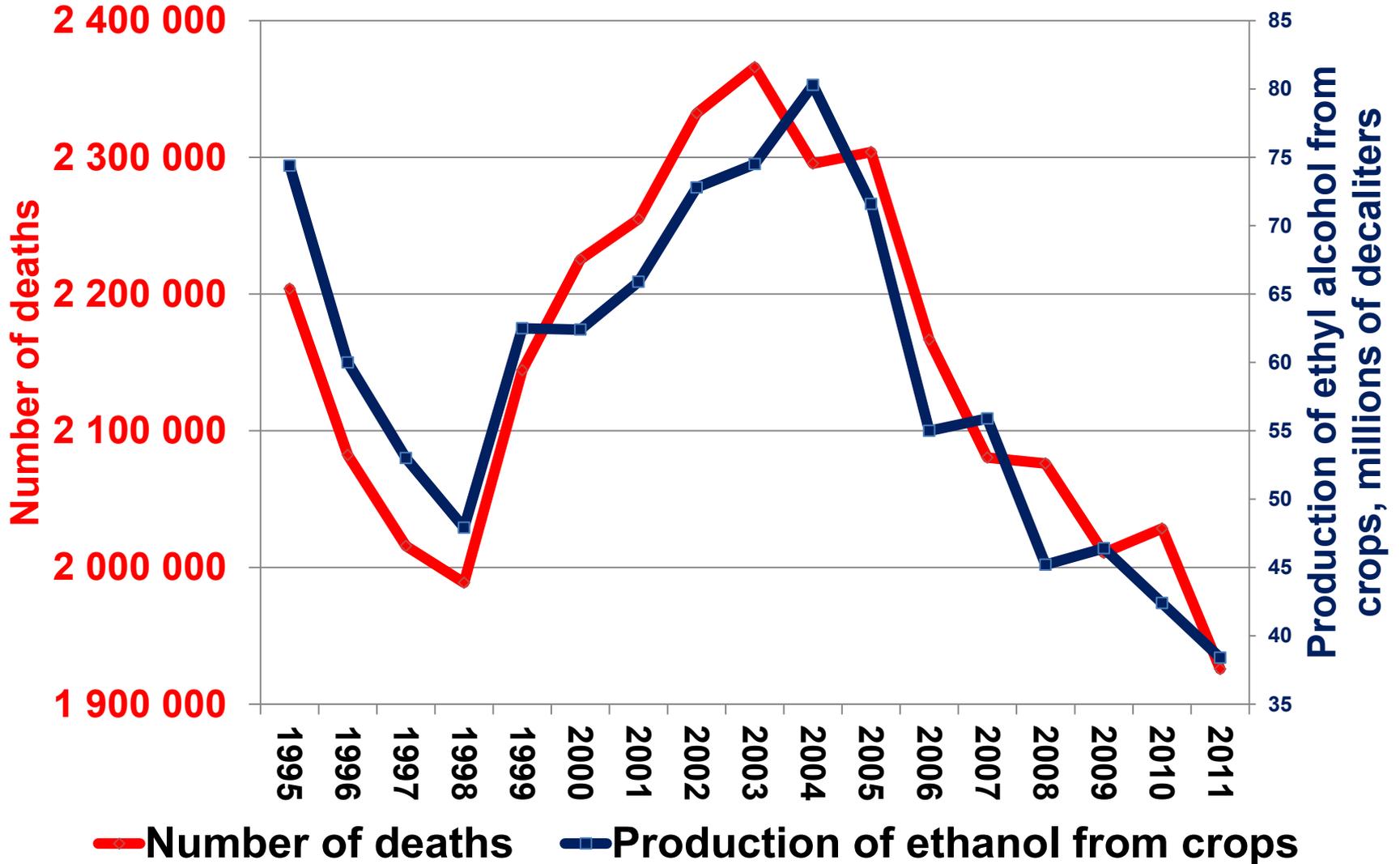
# Female life expectancy at birth (years) in Russia and some other countries in 2015

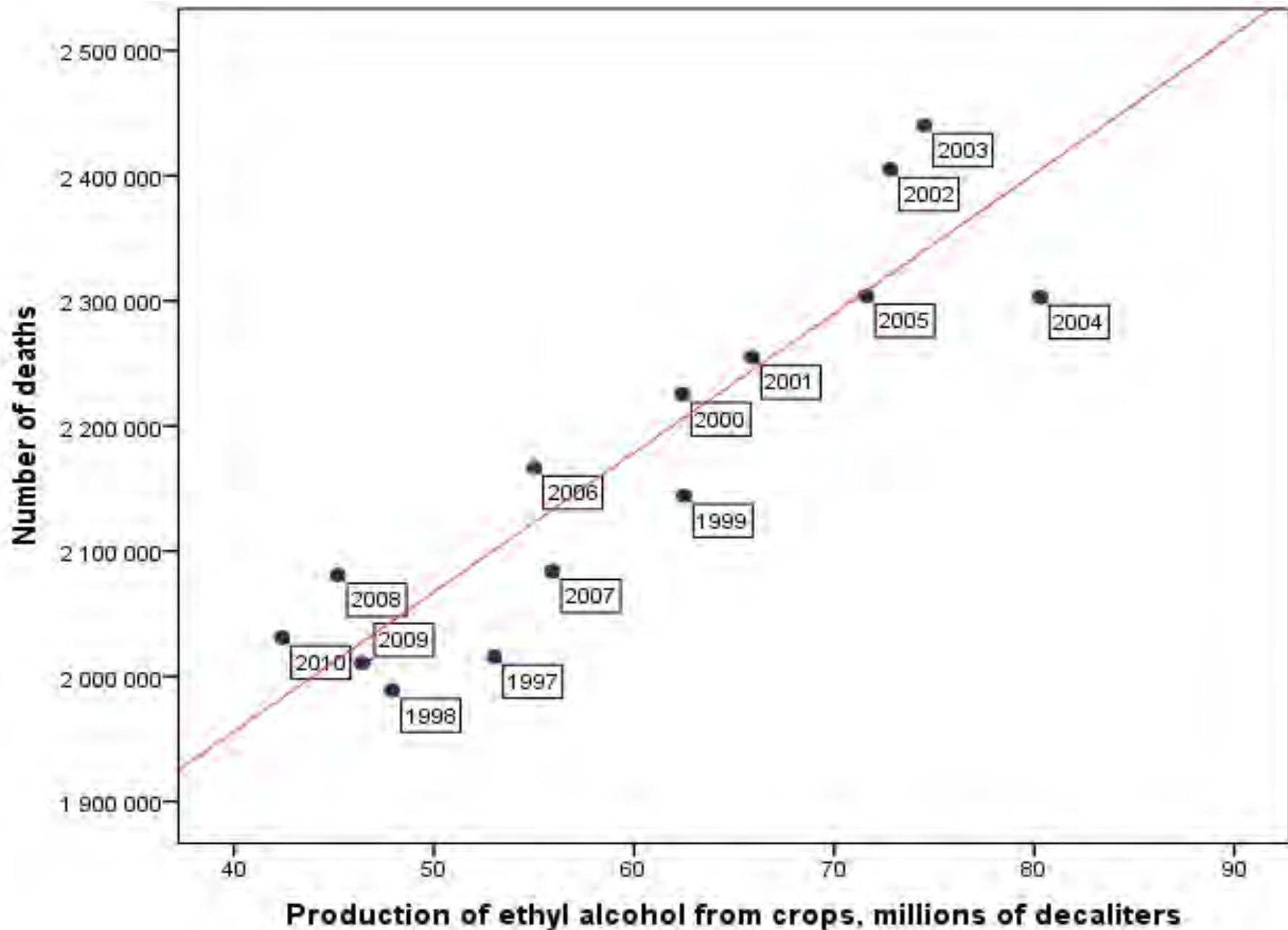


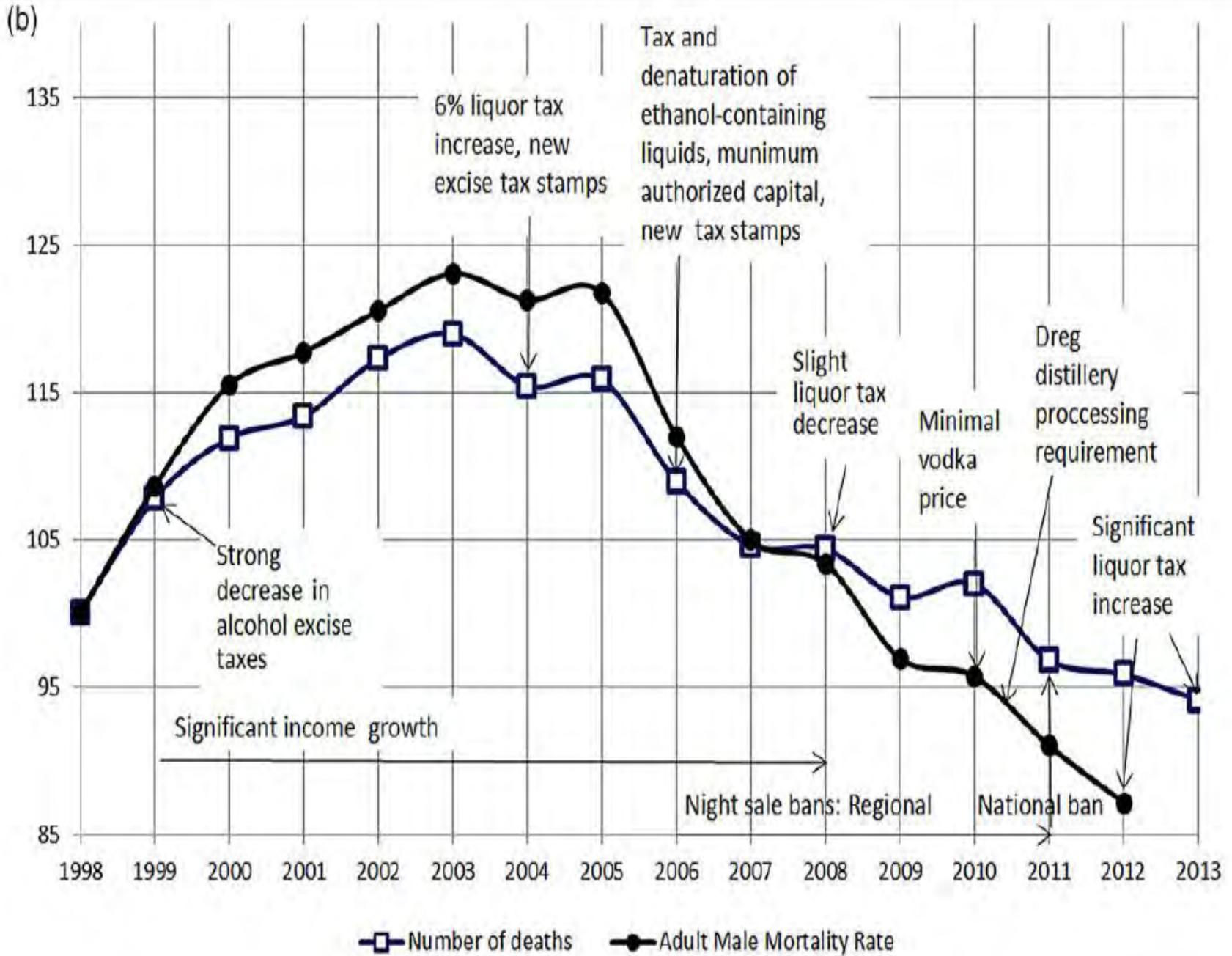
# From infant mortality rate (per 1,000 live births) global rating, 2015

| <i>Place</i> | <i>Country</i> | <i>Value</i> | <i>Place</i> | <i>Country</i> | <i>Value</i> |
|--------------|----------------|--------------|--------------|----------------|--------------|
| 35           | Canada         | 4,3          | 63           | China          | 9,2          |
|              | St.Petersburg  | 4,4          | 124          | Cambodia       | 24,6         |
| 38           | New Zealand    | 4,7          | 132          | Bolivia        | 30,6         |
| 44           | United States  | 5,6          |              | World          | 31,7         |
|              | Moscow         | 6            | 150          | Tajikistan     | 38,5         |
| 49           | Malaysia       | 6            | 166          | Haiti          | 52,2         |
| 50           | Russia         | 6,5          | 168          | Liberia        | 52,8         |
| 51           | Qatar          | 6,8          | 182          | Afghanistan    | 66,3         |
| 52           | Latvia         | 6,9          | 187          | Congo,D.R.     | 74,5         |

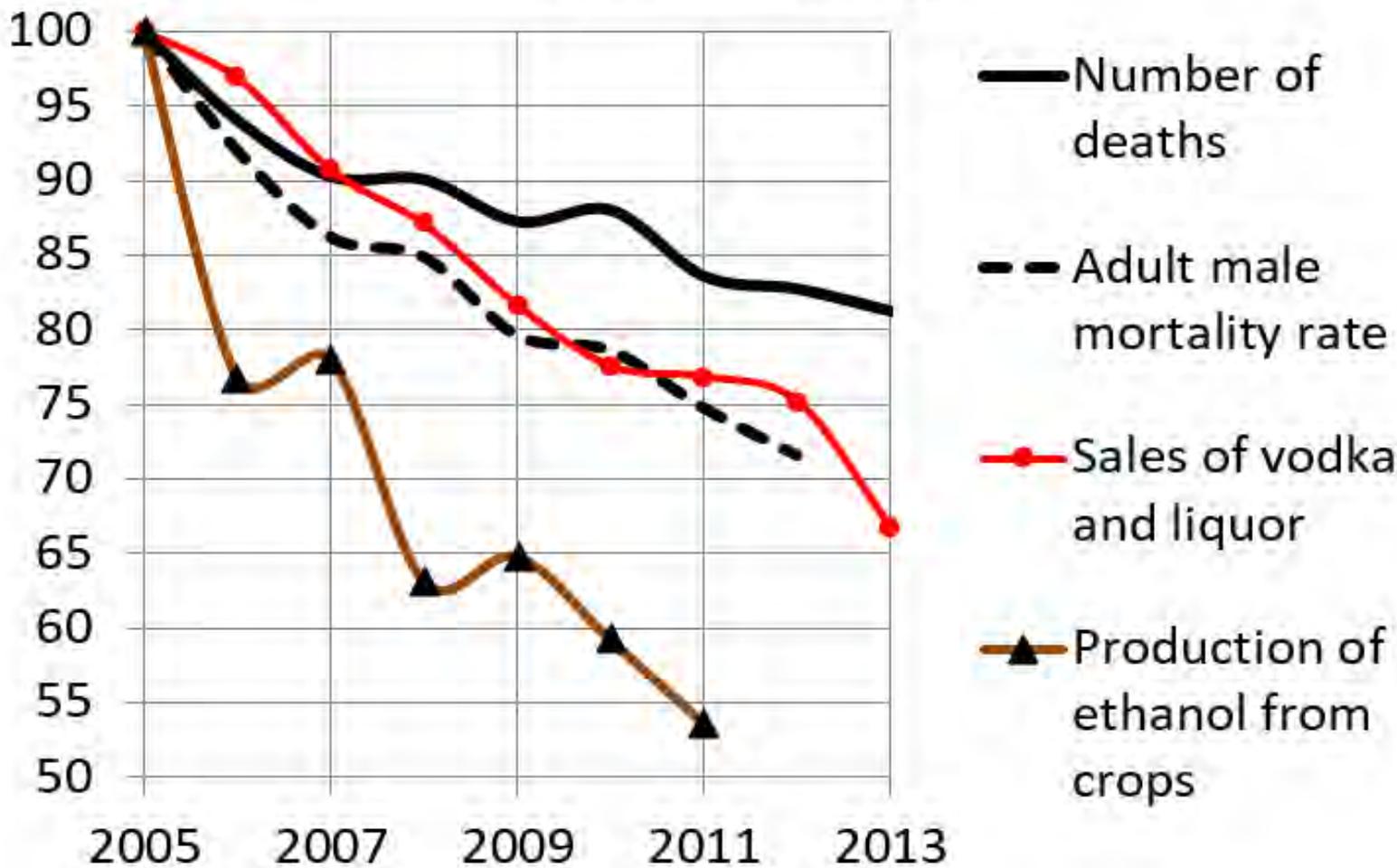
# Production of ethyl alcohol from crops and number of deaths in Russia



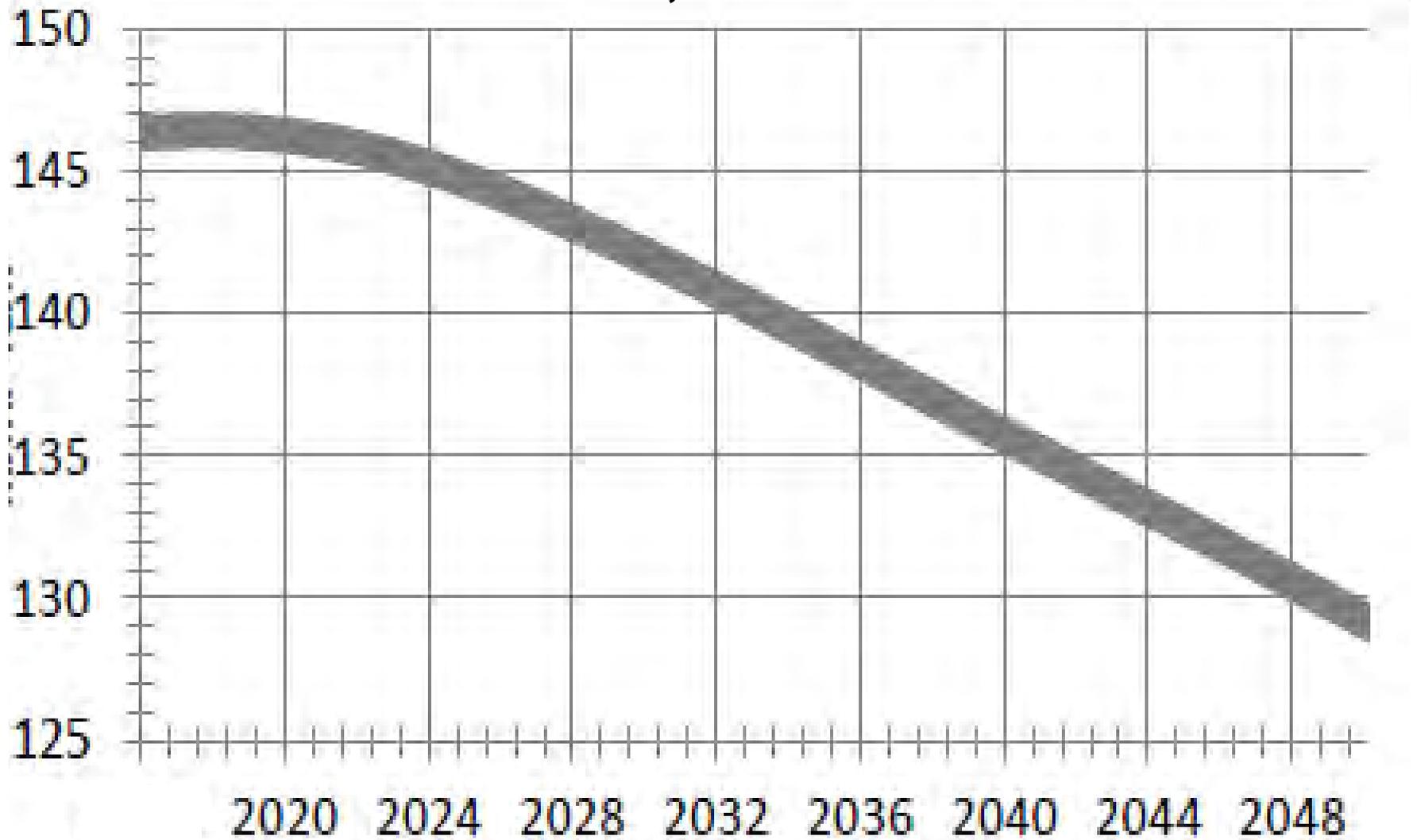


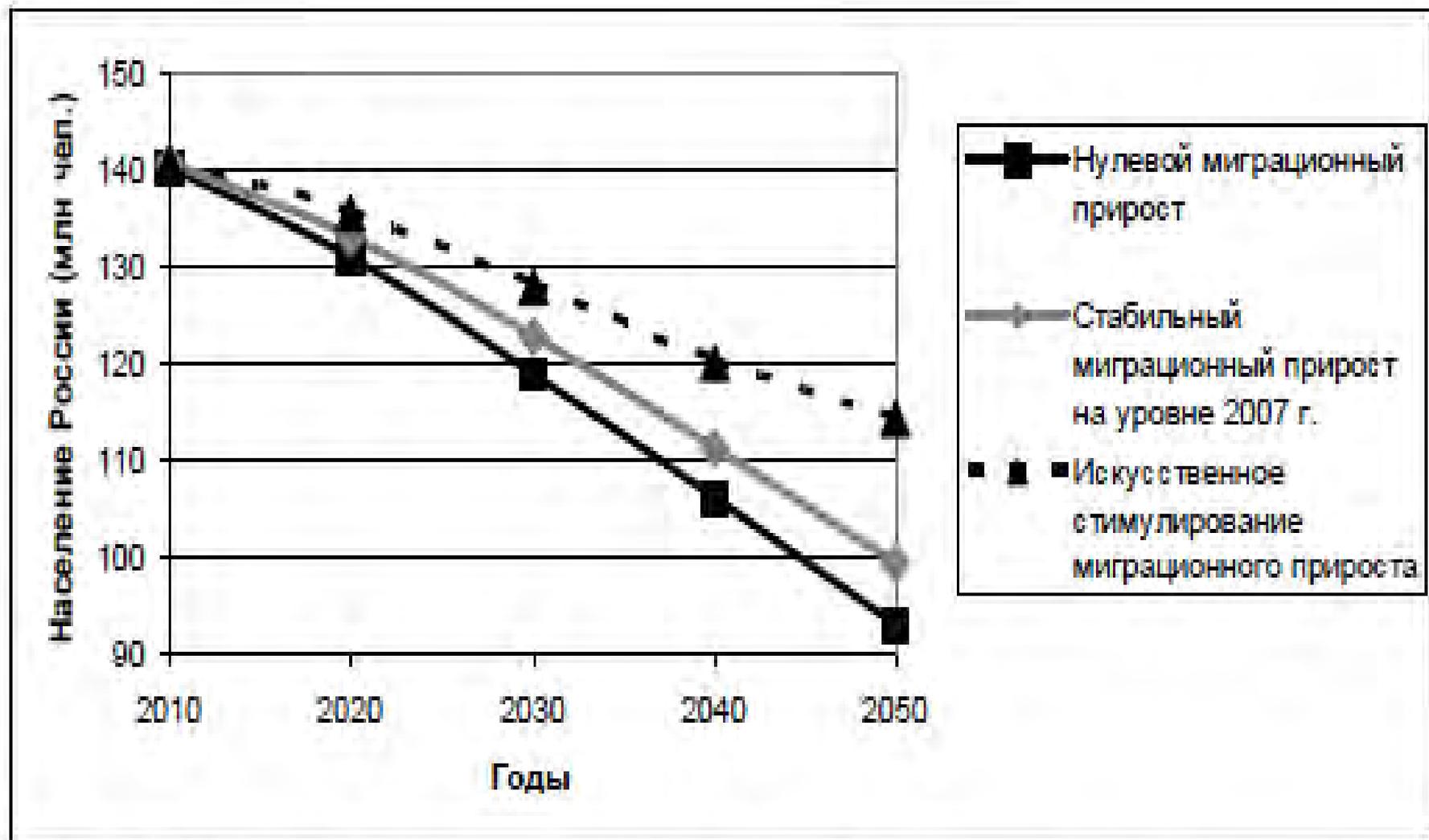


# Relative dynamics of mortality, production of ethyl alcohol from food raw materials, and sales of alcoholic beverages in Russia after 2005 (100 = level of 2005)



# Population of Russia, millions, inertial scenario, 2018-2100

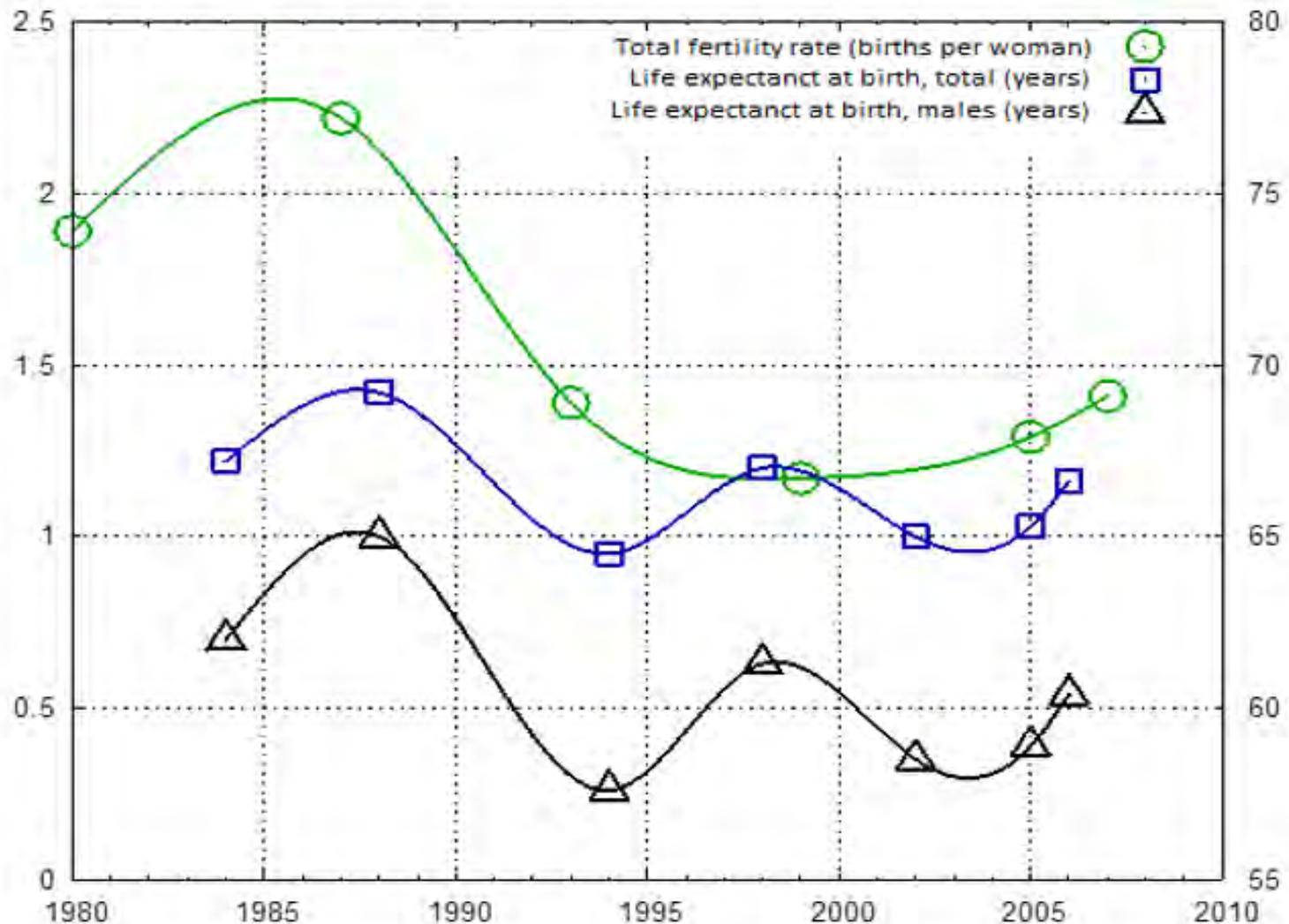




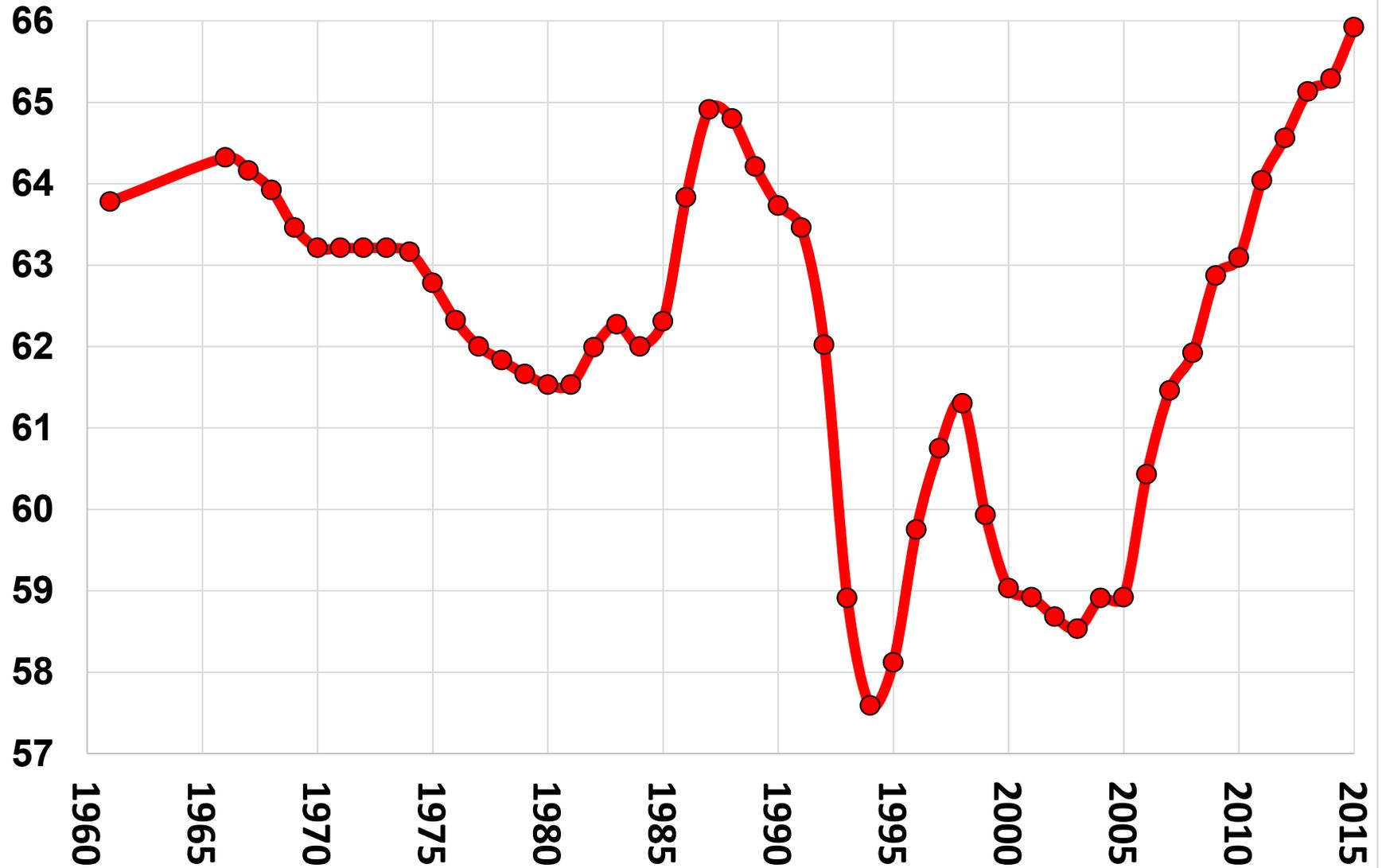
**Рис. 3.** Первый инерционный сценарий динамики численности населения России в 2010–2050 гг., млн чел.

*Источник:* Коротяев и др. 2010: 248.

# Dynamics of total fertility rate (births per woman) and life expectancy in Russia. "Alcohol collapses" of the 1990s and early 2000s



# Male life expectancy dynamics in Russia, years





# ЭТИЛОВЫЙ СПИРТ

Этанол

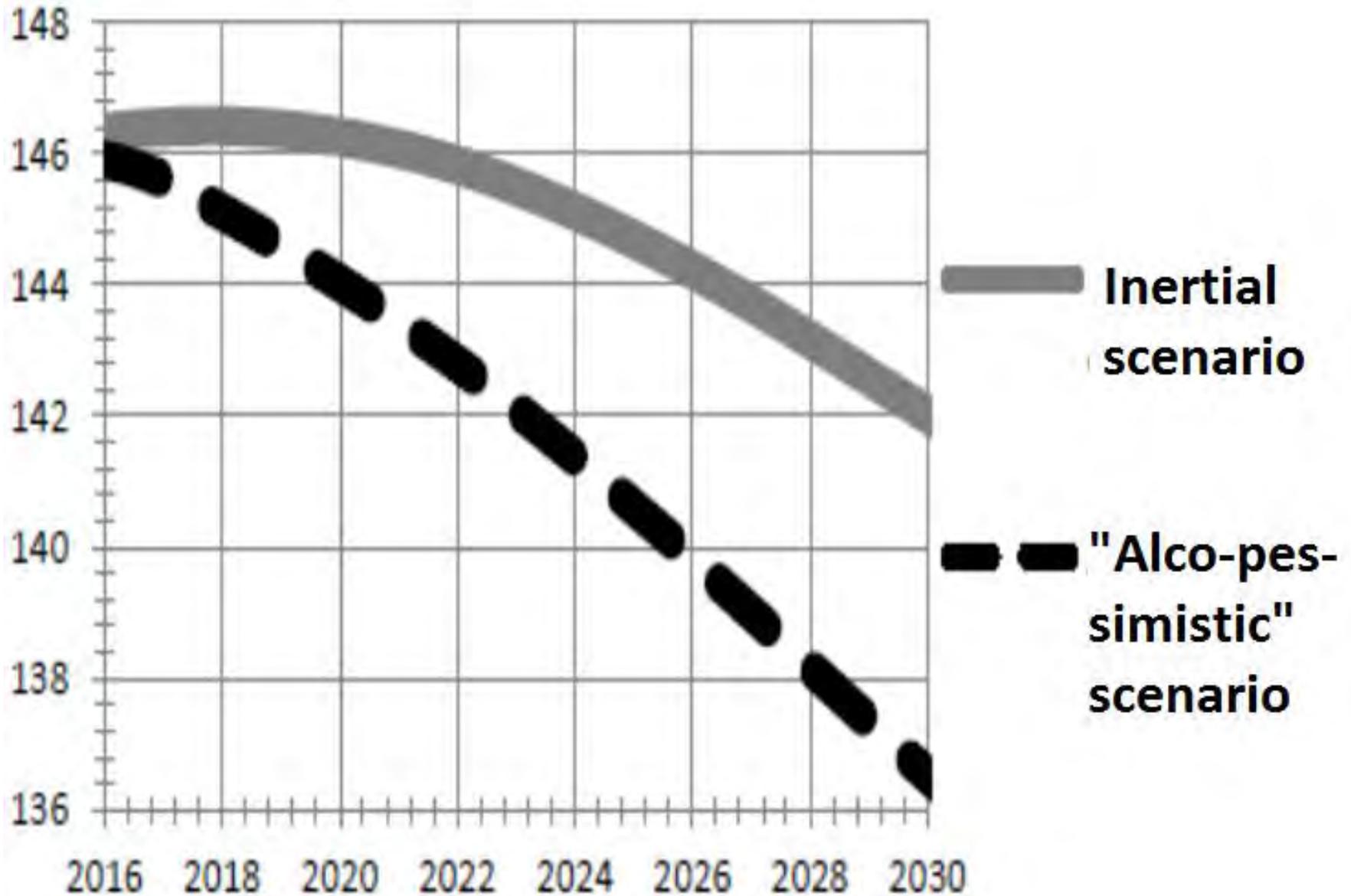
95%

100 мл

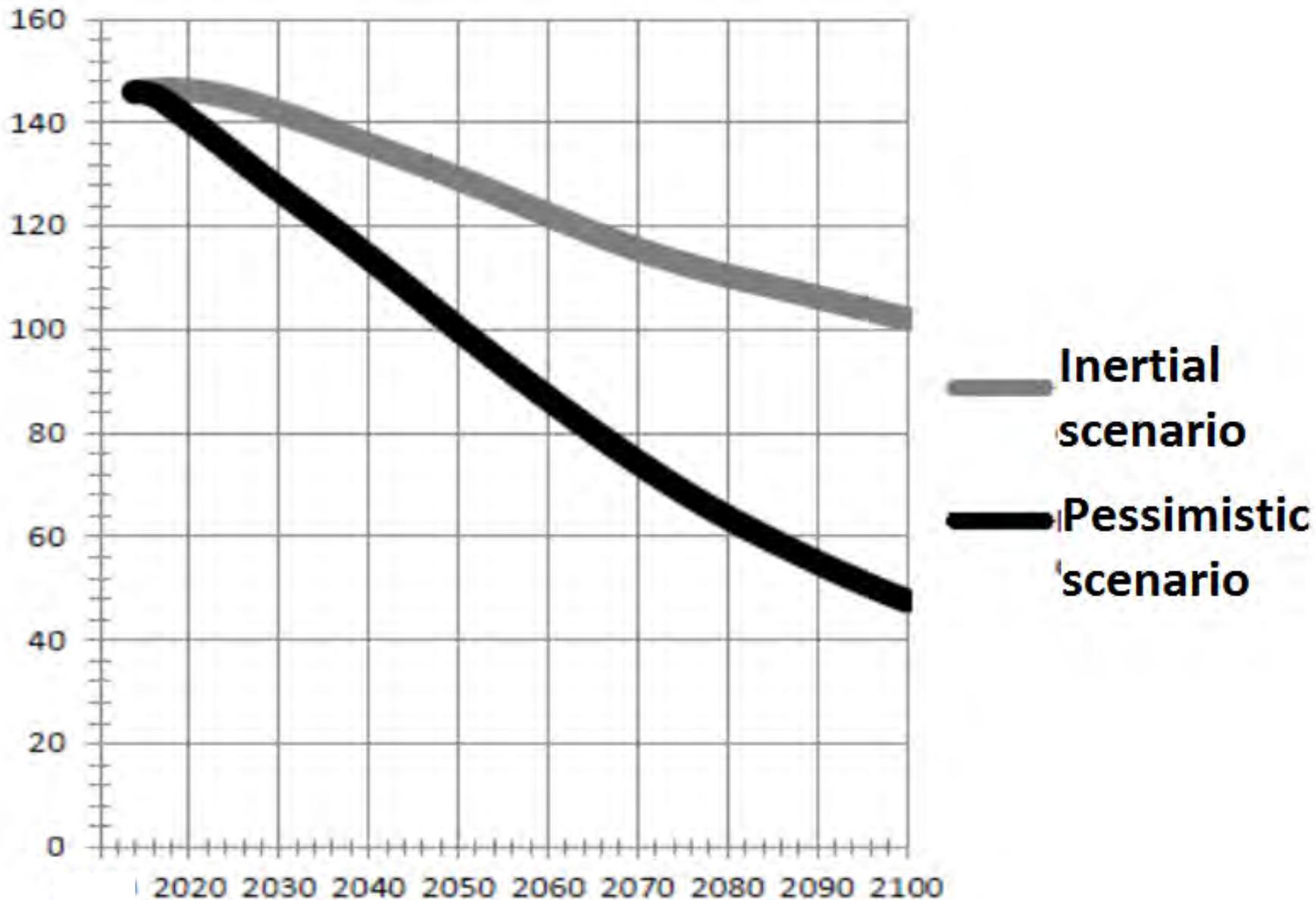


Этанол (этиловый спирт) — бесцветная жидкость с характерным запахом. Применяется в медицине, промышленности и быту. Содержит 95% этанола и 5% воды. Объем — 100 мл.

# Population of Russia, millions, inertial and "alco-pessimistic" scenarios, 2018-2100



# Population of Russia, millions, inertial and pessimistic scenarios, 2018-2100



# Population of Russia, millions, fertility support, inertial, and pessimistic scenarios, 2018-2100

