

NOBEL LAUREATES, 1901-2016

Dataset visualization and analysis

Oleg Kandybko

Nobel Prize is any of the prizes (five in number until 1969, when a sixth was added) that are awarded annually from a fund bequeathed for that purpose by the Swedish inventor and industrialist Alfred Nobel. The Nobel Prizes are widely regarded as the most prestigious awards given for intellectual achievement in the world.

Every year Nobel Prizes are given to scientists and scholars in chemistry, literature, physics, medicine, economics, and peace. The first Nobel Prize was handed out in 1901, and at that time the prize was Eurocentric and male-focused. Let's find out if this is true nowadays.

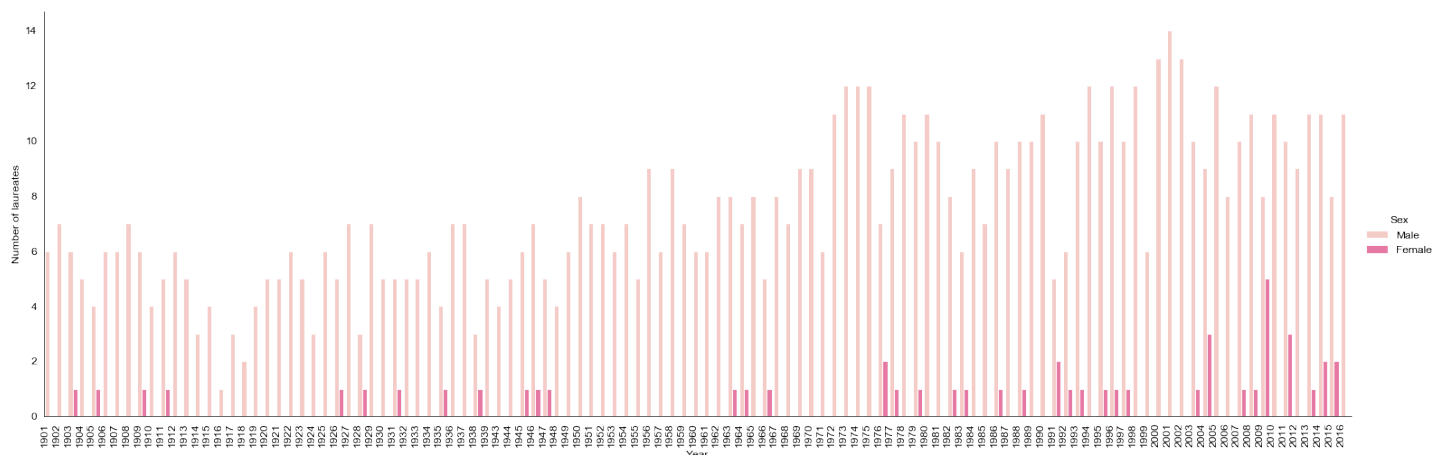


Figure 1: Number of Nobel Prize laureates over time by gender

Between 1901 and 2016 the Nobel Prize has been awarded to women 49 times. The first Nobel Prize that has been received by women was awarded to Marie Curie in 1903 “in recognition of the extraordinary services she has rendered by her discovery of spontaneous radioactivity”. It remains the case that a large majority of prizes are awarded to men, however, in the recent years the situation is gradually beginning to change.

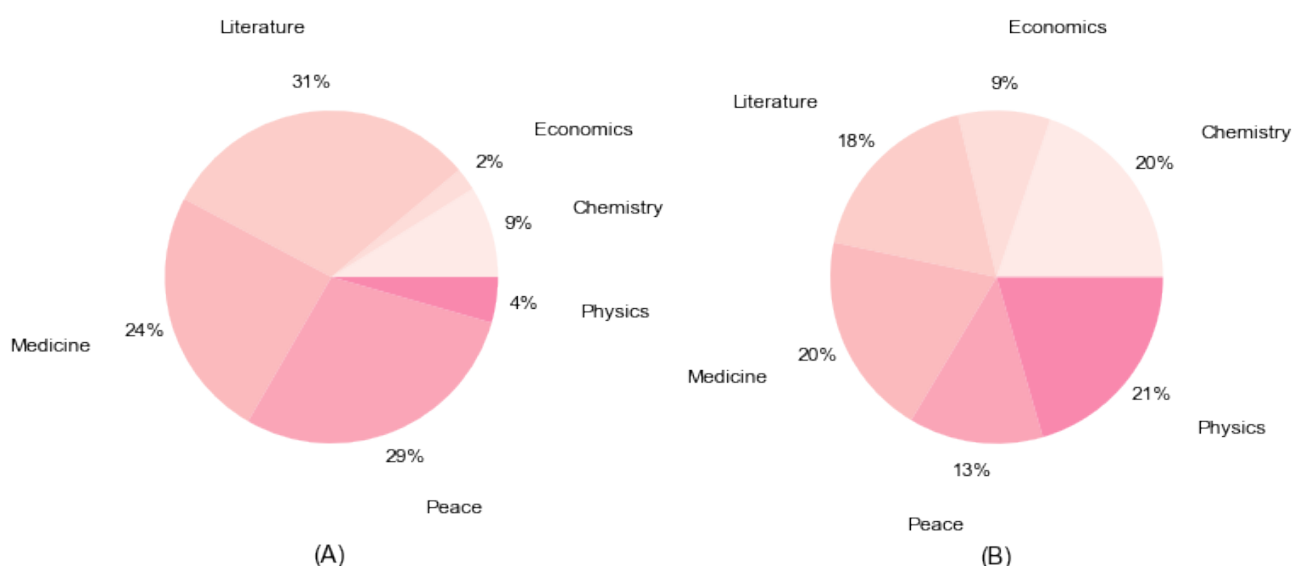


Figure 2: Categories of Nobel Prizes by gender – Female (A) and Male (B)

The most popular categories for female laureates are Literature, Peace and Medicine whereas male Nobel Prize winners excel in Physics, Medicine and Chemistry. Economics ranked last for both genders, however, this is to be expected – the Nobel Prize in Economic Sciences was established by Sweden's Central Bank in 1968, so it's share is just starting to accumulate.

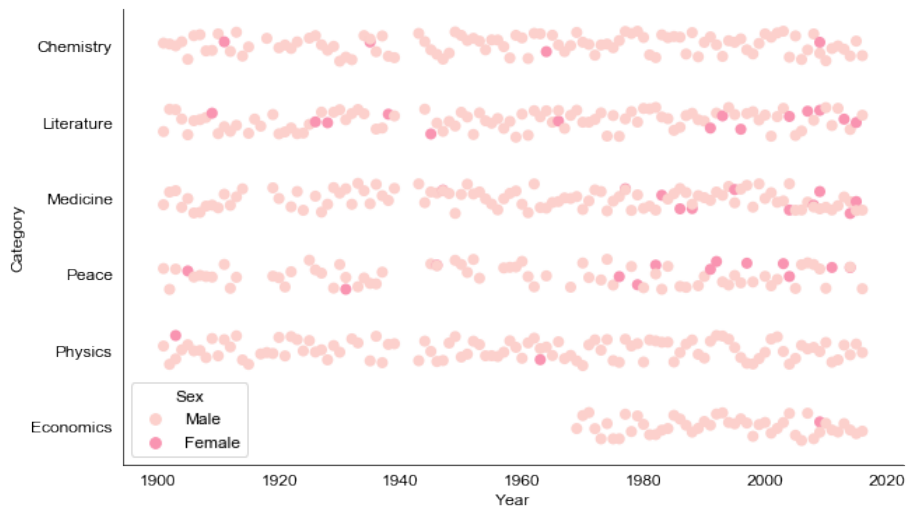


Figure 3: Nobel Prize distribution over time by category and gender

While the general tendency of male Nobel Prize winners remains unchanged in all categories over time, the interest of female winners has switched from Physics and Chemistry to Peace, Medicine and Literature. Now let's shift our focus and try to find out if Nobel Prize is still Eurocentric these days:

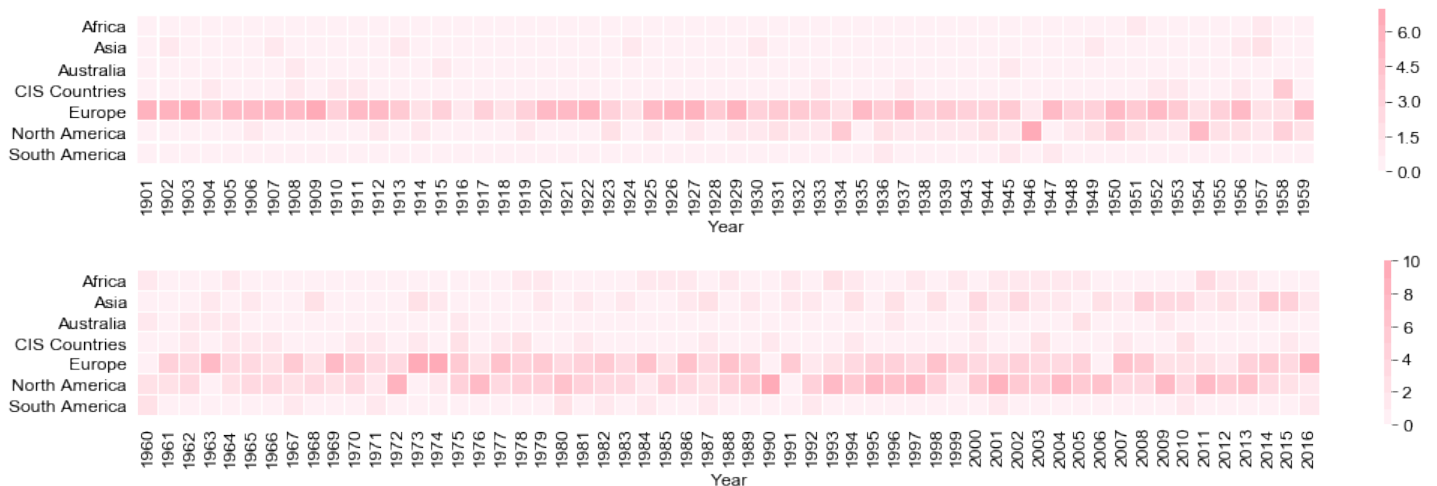


Figure 4: Nobel Prize distribution over time by parts of the world

What we can see is the majority of winners came from Europe until the second half of 20th century. However, approximately after the end of World War II the trend changes and countries of North America, primarily, the United States, become the main country of receiving talent.

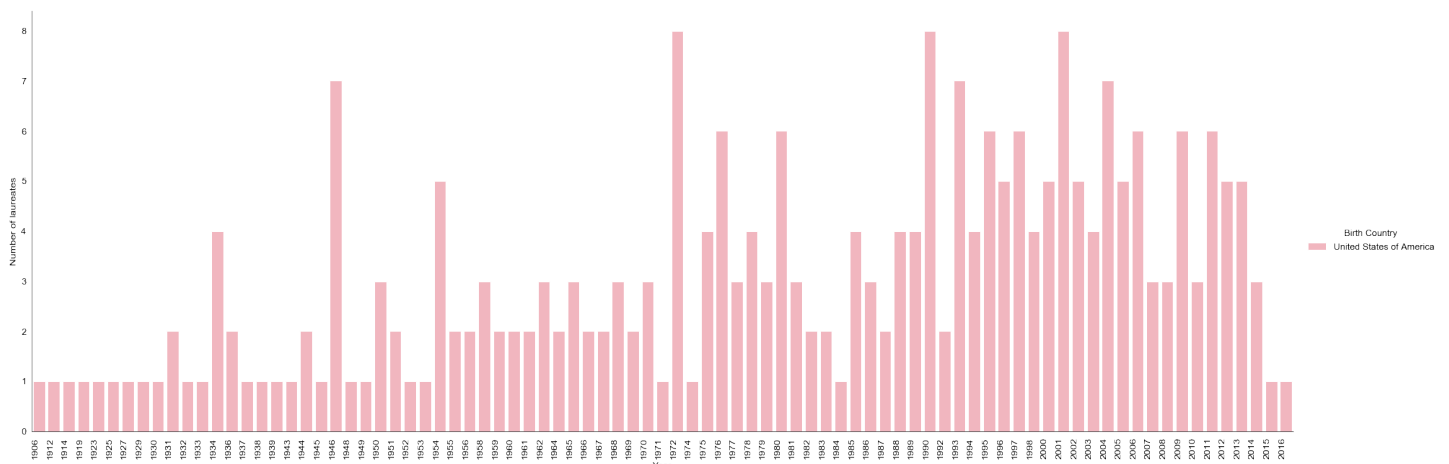


Figure 5: Distribution of Nobel Prize laureates from USA over time

Let's take a closer look at the top 10 countries of receiving talent and find out which country gave birth to the highest number of Nobel Prize laureates and if the trend has changed over time.

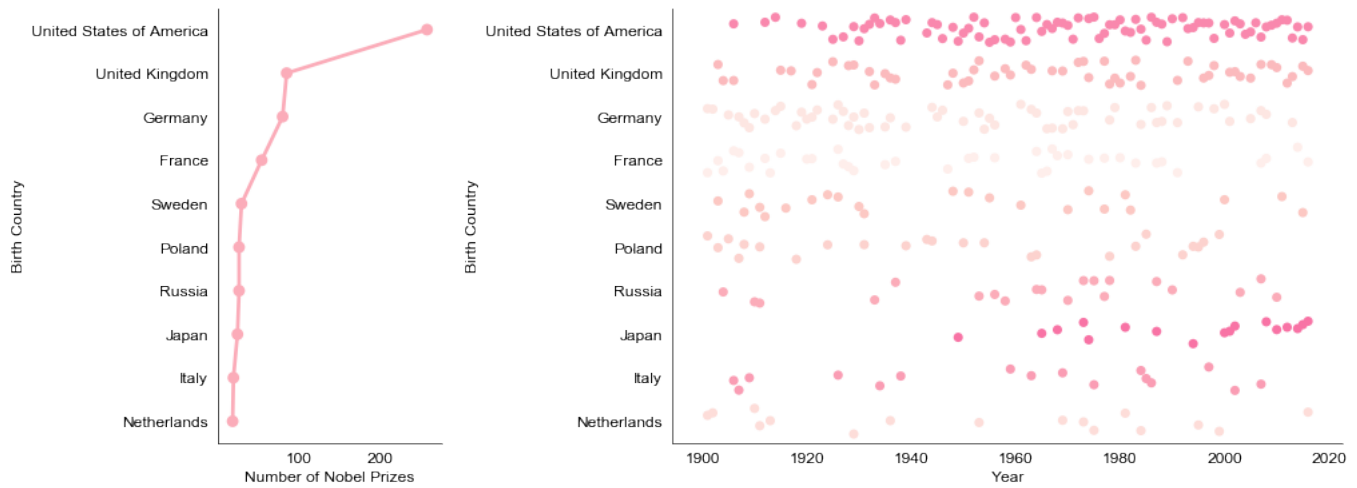


Figure 6: Number of Nobel Prizes by birth country (left) and Nobel Prize distribution by birth country over time (right)

The USA is evidently the country that gave birth to the highest number of Nobel Prize laureates, followed by the United Kingdom and Germany. While the trend of laureates born in the United Kingdom and in Germany appears to be fairly consistent over time, with a balanced number of winners in the period 1901-2016, other countries like Canada, Japan and the USA have been giving birth to an incremental number of laureates. This is particularly true for the USA where 60% of Nobel Prizes have been assigned after 1975.

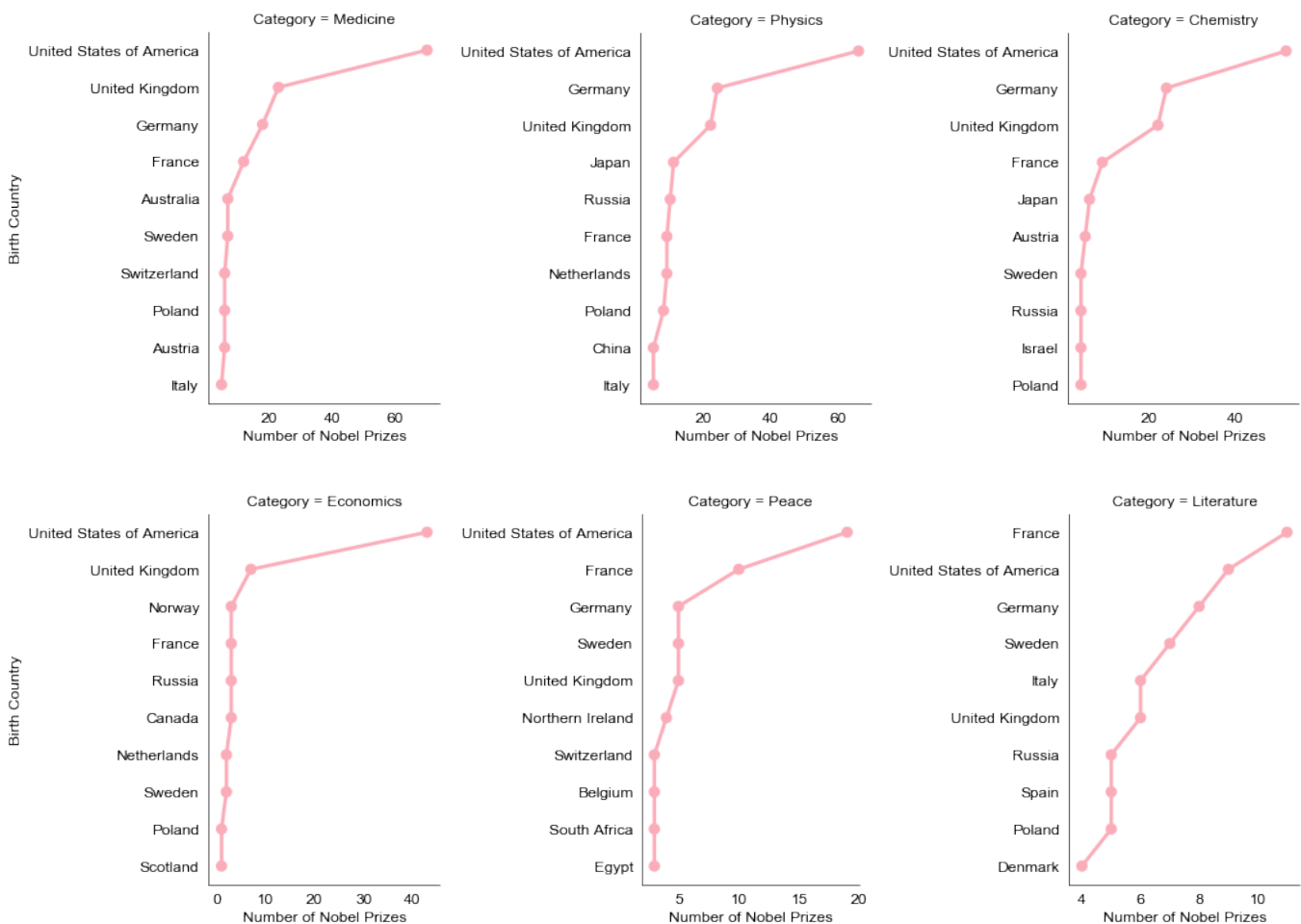


Figure 7: Number of Nobel Prizes by birth country and category

The United States of America ranks 1st in most of Nobel Prize categories: Medicine, Physics, Chemistry, Economic Sciences. Germany ranks 2nd in Physics and Chemistry and 3rd in Medicine, Peace and Literature.

The United Kingdom is 2nd in Medicine and Economics and 3rd in Physics and Chemistry. France holds dominance in Literature and comes second in Peace. Let's explore the trends of Nobel Prize laureates age.

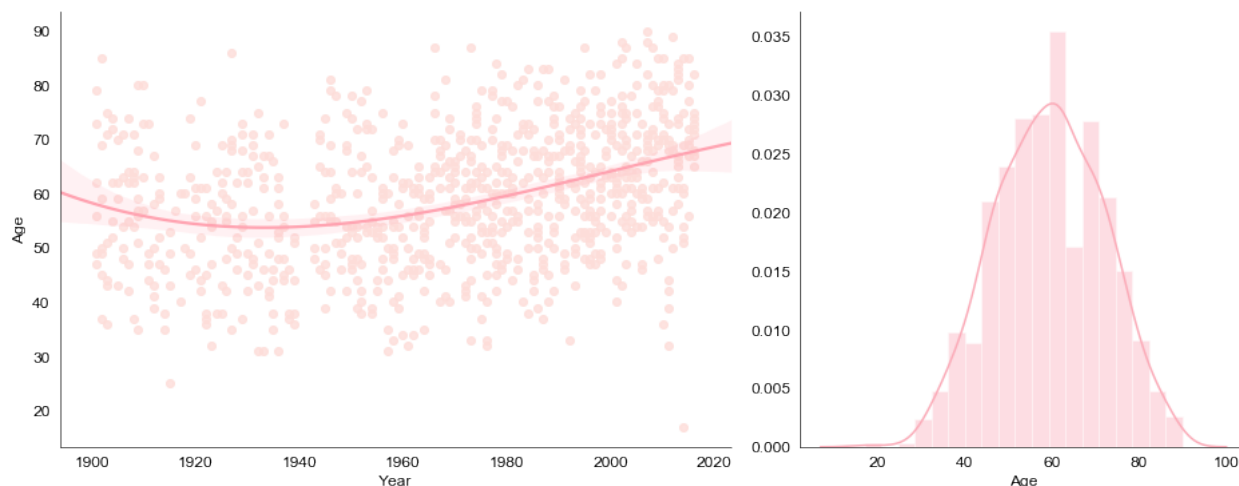


Figure 8: Distribution of age while receiving Nobel Prize over time (left) and distribution of age while receiving Nobel Prize (right)

The average age of a Nobel Prize winner lies in range from 58 to 60 years. The average age was almost constant until 1950 – after that the age of laureates while receiving the prize has increased by almost 8 years.

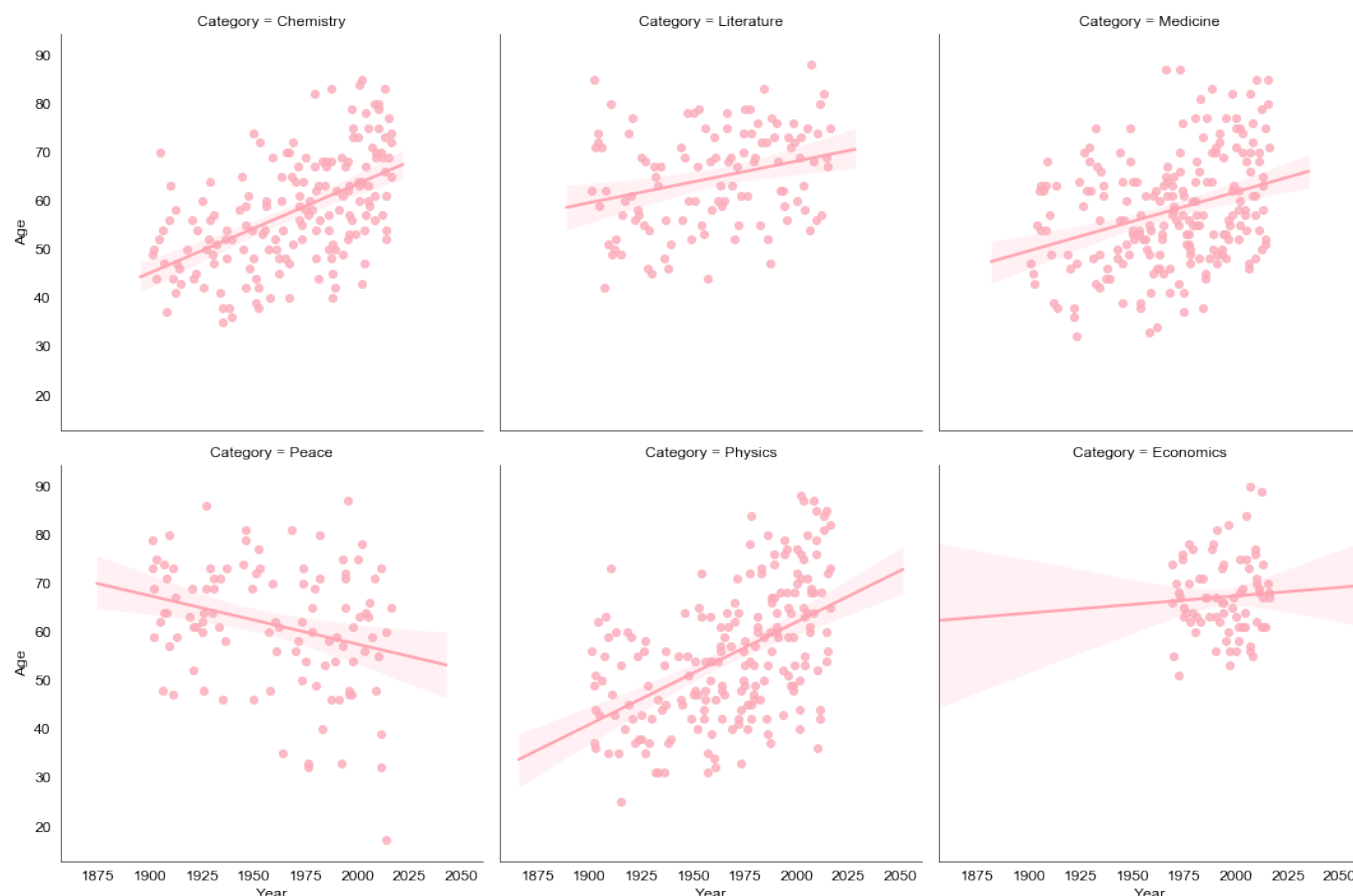


Figure 9: Distribution of age while receiving Nobel Prize over time by category

The categories of Chemistry, Medicine and Physics have a similar tendency: the average age in all these categories is constantly increasing over the years. The largest deviation can be seen in the Physics category. The only category that showed a decrease in average age was Peace, while the average age in Economics and Literature remained the same over the years. Another important observation that we can make is that in the category Peace the values are distributed more widely, which indicates that the age of many laureates in this category is far from average age.

Table 1: Average age while receiving Nobel Prize by category

Category	Average age	Lower 95	Upper 95
Chemistry	57	56	59
Literature	64	62	66
Medicine	57	56	59
Peace	61	58	63
Physics	55	53	57
Economics	67	65	69

Another important topic is multiple Nobel laureates. Marie Curie was the first woman to be awarded in 1903 (Physics Prize) and the only woman to be awarded twice. The work of the International Committee of the Red Cross (ICRC) has been honored by a Nobel Peace Prize three times. Linus Pauling is the only person to have been awarded two unshared Nobel Prizes – the 1954 Nobel Prize in Chemistry and the 1962 Nobel Peace Prize.

Table 2: Multiple Nobel laureates

Year	Laureate Type	Prize	Full Name
1903	Individual	The Nobel Prize in Physics 1903	Marie Curie, née Skłodowska
1911	Individual	The Nobel Prize in Chemistry 1911	Marie Curie, née Skłodowska
1917	Organization	The Nobel Peace Prize 1917	ICRC
1944	Organization	The Nobel Peace Prize 1944	ICRC
1954	Individual	The Nobel Prize in Chemistry 1954	Linus Carl Pauling
1954	Organization	The Nobel Peace Prize 1954	UNHCR
1956	Individual	The Nobel Prize in Physics 1956	John Bardeen
1958	Individual	The Nobel Prize in Chemistry 1958	Frederick Sanger
1962	Individual	The Nobel Peace Prize 1962	Linus Carl Pauling
1963	Organization	The Nobel Peace Prize 1963	ICRC
1972	Individual	The Nobel Prize in Physics 1972	John Bardeen
1980	Individual	The Nobel Prize in Chemistry 1980	Frederick Sange
1981	Organization	The Nobel Peace Prize 1981	UNHCR

Let's summarize what we have found out:

- The majority of Nobel Prize winners are men
- The USA is the country with most Nobel Prizes
- The USA became the main country of receiving talent after World War II
- Average age of a Nobel Prize laureate is 59 years
- Different categories of Nobel Prize have different trends in average age
- Only 4 people have received Nobel Prize twice