# Netflix cost analytics

With the increasing usage of online streaming services such as Netflix, Amazon video and many other, not every country where these services are offered is treated the same way.

This article regards the analysis of the Netflix cost in different countries all around the world.  
The analysis takes in consideration the three major types of monthly subscriptions that Netflix offers to its customers and the number of articles (movies and Tv-Shows) offered in that area.

The analysis aims to find the best and worst countries to have Netflix via 2 different observations:

1. Netflix fee/titles ratio.
2. Netflix fee/GDP ratio.

The first analysis takes in consideration only Netflix parameters, not including financial aspects of the countries, such as GDP and GDP per capita.

The second analysis considers the GDP of the countries and offers a view on how to categorize Netflix services in that area (low, high, elite service).

All the analysis has been made using python, more precisely the modules Pandas, Numpy for numeric analysis, matplotlib and seaborn for visualization.

## Data set

The data on which the conclusions of this article are made relates to Netflix fees in the year 2021 and December 2021.[[1]](#footnote-1)

### Data

The data used in this analysis is stored in a csv file; for this reason, it is not particularly difficult to translate it in a pandas data frame.

The original data source was composed by 65 rows and 7 columns, containing information regarding the fees and the number of articles offered in each country present in the data frame.

From left to right the columns were:

1. Total Library Size: total of articles (tv series and movies)
2. No. of TV Shows
3. No. of Movies:
4. Cost Per Month – Basic ($)
5. Cost Per Month -Standard ($)
6. Cost Per Month – Premium ($)

Netflix offers three types of subscription plan that differs in how many different devices can watch and download movies and TV shows simultaneously. See <https://help.netflix.com/it/node/24926> for more information.

## Revising the data

Because the columns name contains blank spaces and use a dot notation, they are not particularly efficient during the analysis in pandas. For this reason, a first step was to revise the data changing the columns name keeping the meaning but making them more efficient for direct access via pandas built-in functions.

This step was made by using the rename method of pandas

Immagine che contiene testo

Descrizione generata automaticamente

Figura 1-Changing columns name

In this format, the data frame columns are accessible using the dot format.

## Average monthly subscription

### In this preliminary analysis we concentrate on finding the countries where the monthly Netflix subscription fee is on average highest and lowest.

This analysis does not take in consideration financial aspects of the single countries such as GDP per capita and quality of the subscriptions such as quantity of article offered.

For this reason, the observations are merely objective and are not that useful on finding the best and worst country to have a Netflix subscription but helps to analyze the distribution of the fees in the countries that are analyzed.

### Enriching the data

Duo the fact that the data frame holds information regarding the cost of each type of subscription offered by Netflix, we can simply analyze the mean value of these prices for each country, not considering financial and quality aspects.

This info is easily calculated as the mean of the three Netflix fees regarding the basic, standard and premium subscription cost.

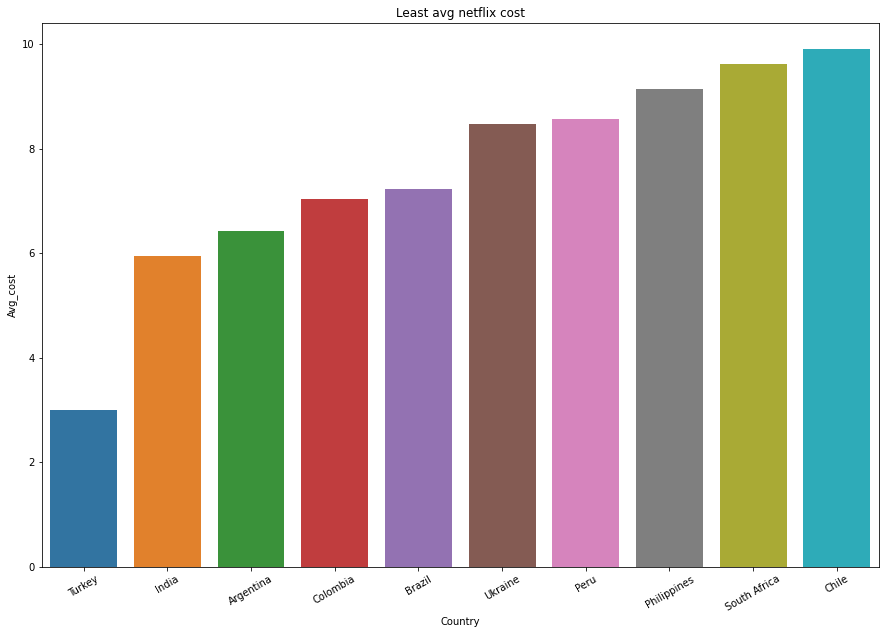
For this purpose, we enrich the data frame by adding one column *AVG\_COST* which will memorize the mean of the three types of fees offered by Netflix.

Using this information, it is possible to view which countries has the highest and lowest average cost for a Netflix subscription.

### Lowest avg fees

Sorting the data frame in ascending order on the column *AVG\_COST* we can find the following it is possible to find where the average cost of Netflix is higher and where it is lower.

To find the countries where the average cost is lower, we sort the data frame in an ascending order and analyze the first 10 elements. This elaboration gives the following result.

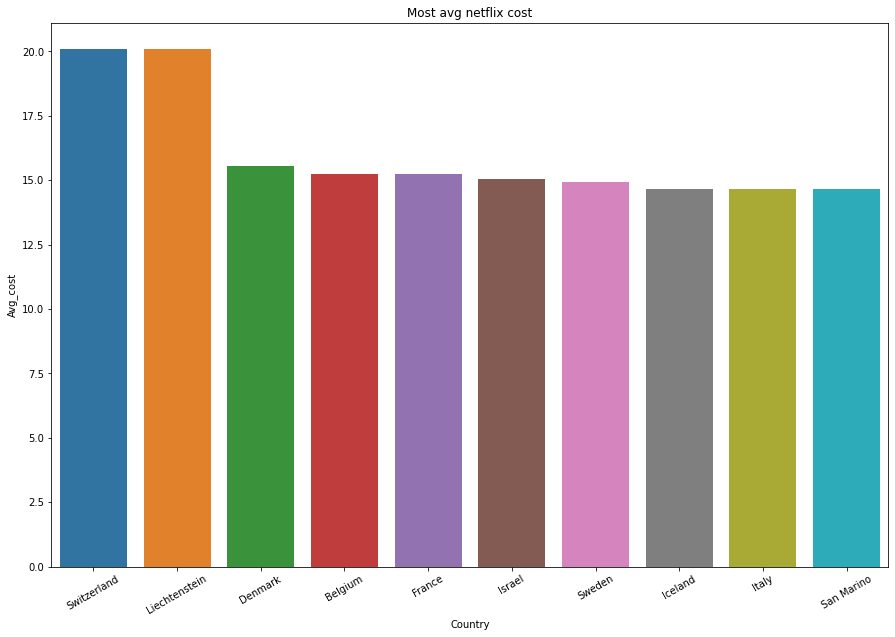


The least expensive fee offered by Netflix is Turkey ($3), followed by India ($6) and Argentina ($6.5).

The result of this observation is that there is a high disparity on the average cost of Netflix subscription regarding the price offered in Turkey and the other countries, which is almost half.

### Highest avg fees

Sorting in a decreasing order the data frame on the AVG\_COST column it is possible to find the countries where Netflix fees are more expensive.



The highest average fees are in Switzerland and Liechtenstein which are both 20 dollars.

The other countries in the result have approximately the same average fee ($15).

It is surprising not to see in the result rich countries such as USA.

## Quality of the service

In this analysis we concentrate on finding the best and worst countries to have Netflix considering the quality of the service. For quality we indicate how the Netflix fees are related to the quantity of articles offered in a specific area. In other words, how much does a single article (movie or tv show) cost in a single country.

The hypothesis in this analysis is that countries where the price is lower will have fewer articles than countries where the price is higher.

### Enriching the data

For this analysis the data is enriched by inserting 4 columns.

1. *AVG\_COST\_BASIC\_PER\_TITLE*: how much does a single title or article cost for a basic subscription;
2. *AVG\_COST\_STD\_PER\_TITLE:* how much does a single tittle or article cost for a standard subscription;
3. *AVG\_COST\_PREMIUM\_PER\_TITLE:* how much does a single tittle or article cost for a premium subscription;
4. *AVG\_COST \_PER\_TITLE:* how much does a single tittle or article cost on average subscription.

These informations can be derived by the data already held in the data frame, by calculating the ratio

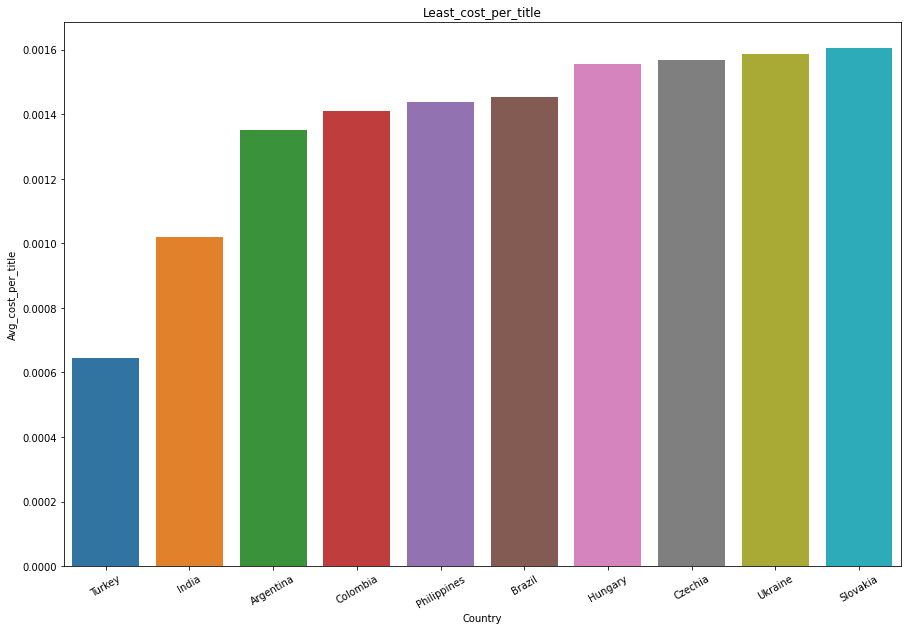
Where *i* stands for the specific cost that we are considering (*i*=BASIC, STANDARD, PREMIUM, AVERAGE).

With these columns it is possible to identify the countries with best and worst quality of service.

### Best quality

This category of countries can be identified by finding the counties where the price per title is lowest but have a total of titles greater than the overall number of title average.

Sorting the data frame by average cost per title in ascending order we can find the countries with the best cost per title ratio.



This observation though does not yet answer the question of finding the countries with best quality because a country in this list could be characterized by a low cost per month subscription and a low number of articles.

From the previews result we filter the countries that have a total of articles smaller than the overall average and order the remaining countries in a decreasing order considering the cost per title and the total articles offered in that area.

The result of this observation is that the most convenient countries to have Netflix, considering the number of titles offered and the average cost of the monthly Netflix subscriptions are Slovakia, Czechia, and Hungary.

### Least convenient

Using the reverse logic described previously it is possible to find the countries where it is less convenient to have Netflix under a cost per title point of view.

In this case we find the countries having the most expensive cost per title and filter the ones having a number of titles greater than the overall average.

[Mancano le foto]

### Conclusions

Considering only the number of titles offered in a certain country, it is possible to evaluate the convenience of a Netflix subscription analyzing the cost per title.

This observation though, do not consider financial aspects of the countries and do not consider the quality of the titles offered.

Furthermore, using a VPN (Virtual private network) it is possible to switch Netflix servers, given access to titles not offered in the region of residence.

What this analysis shows is that Netflix does not determine the price of its subscription only on the number of titles offered but considers also financial aspects of the countries.

## Fairness of the service

Until now the analysis has observed only the data related to Netflix such as the fees offered to its client, the number of titles offered in a certain country and the convenience to have the service in relation to the number of movies and tv series offered, not including financial aspects of the countries analyzed.

This analysis will consider not only the price of the service but also financial aspects of the countries, more precisely its GDP per capita.

This will help understating if the distribution of the prices of Netflix is fair or not, and where the prices should be increased or decreased.

### Enriching the data

The first step for this analysis is to acquire the GDP per capita data related to the countries analyzed.

For this manner we will be retrieving the information from the data set [[2]](#footnote-2)*countries.cvs.*

This data set offers interesting insights regarding the GDP related to several countries.

We merge the two data frames to analyze only informations related to the countries previously analyzed.

Using the GDP per capita information, we can now see how the Netflix average monthly cost weighs on the monthly incomes of the different countries.

For each country we calculate the percentage of monthly income spent on average on Netflix subscriptions as

If the Netflix cost policy is fair, the values of this parameter should be pretty much similar for each country.

Also, we can create a *Score* by multiplying this parameter with the number of titles offered in that area.

The more little the Score associated to a country is, the more convenient for citizens of that country is to have Netflix.

### Most convenient

By calculating the *Score* for each country, the results are amazing.

What stands out are the unfairness treatment of countries such as Honduras, Moldova, and Bolivia in relation to Turkey, which is the country with the lowest score, declaring it the best country to have Netflix.

Comparing Honduras and Turkey, which are country with a similar number of titles we can see that the Score associated to Turkey is much smaller than the one calculated in Honduras.

The reason of this disparity of score is the AVG monthly cost of Netflix in Turkey.

Even though Honduras has a GDP per capita of $4500, almost 600% less then Turkey, the prices of the Netflix subscription are in average more than 3 times higher.

The cost for a Netflix subscription in Turkey is in average $4 and in relation to the GDP per capita it consists in barely the 0.2% of it.

The cost for a Netflix subscription in Honduras is on average $14 and in relation to its GDP per capita, it consists in around 4%.

Even comparing the prices of Turkey with countries like USA or Italy, the results are unequivocal:

Turkey is the most convenient place to have Netflix.

1. https://www.kaggle.com/prasertk/netflix-subscription-price-in-different-countries/version/2?select=netflix+price+in+different+countries.csv# [↑](#footnote-ref-1)
2. 'https://gist.githubusercontent.com/aakashns/28b2e504b3350afd9bdb157893f9725c/raw/994b65665757f4f8887db1c85986a897abb23d84/countries.csv' [↑](#footnote-ref-2)