# Summer Institute Analytics Project 2020

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## Introduction

The National Bureau of Economic Research operates as a private, non-profit organization that focuses on the development of economic research to be used by academics, business professionals and beyond. Every summer, the Summer Institute is held as a platform for such individuals to share their work. The NBER Summer Institute is a three-week gathering of applied economists that takes place during July of each year. A number of meetings occur that involve researchers presenting and discussing papers about topics such as Corporate Finance, Monetary Economics, International Trade, and many more topics. In 2020, more than 1,000 economists participated in the summer institute.

Due to the COVID-19 pandemic during the summer of 2020, the Summer Institute was moved online and made available to the public via YouTube livestream of Zoom meetings. Overall, the streams were able to garner around 113,831 views and 40,278 total hours of viewing, and the NBER YouTube channel gained more than 2,500 new subscribers.

In this paper, we will analyze the demographics and online behaviors of Summer Institute viewers. With the use of online analytics and statistics of presentations and papers, we will analyze the most and least popular meetings within the conference in hopes to provide insights on a new virtual method of presentation.

## General Statistics

In providing an overview of the viewers general statistics, we tracked viewer age, gender, subscription status, geographic location, traffic source, subscription source, and device type.

The majority of viewers on YouTube are in the age group 25-34 years old, making up 67.13% of the total viewers (Figure 1). The oldest age group of 45-54 year old made up the smallest portion of the viewers at only 1.63%. Men made up the majority of the viewers at 70.43%, while women represented 29.57%. With a total of 114,063 views, 75.24% of such views belonged to those who were subscribed to the NBER YouTube Channel and 24.70% were not subscribed.

Geographically, the viewers of the live streams came from over 24 different countries including United States, Great Britain, Germany, Canada, Italy, India, France, Brazil, Spain, Switzerland, Turkey, Japan, Netherlands, Hong Kong, South Korea, Argentina, South Africa, Singapore, Ireland, Denmark, Slovenia, Slovakia, Chile, and Indonesia (Figure 2). However, the absolute majority of viewers came from the United States with 5,829 total viewers.

The largest average source of traffic for viewers was the NBER YouTube Channel with 30.93% of the total viewers, and the smallest was via the NBER SI YouTube playlist page which comprised only .21% of viewers (Figure 3).

Likewise, the largest number of subscriptions per day were to the NBER YouTube channel (Figure 4). Subscribers in almost all categories experience their maximum on the first day of the conference, with YouTube receiving 347 new subscriptions. As the conference progressed there was a decline in average subscriptions over all, with the YouTube channel receiving only 6 new subscribers on the final day of the conference.

The vast majority of viewers used a desktop to view the video streams with 75,009 total views (Figure 5). Mobile devices were the second most popular with 29,284 views. The tablet

and TV came in at 6,793 and 2,099 views respectively and the least popular device was the game console with only 102 views.

**Research Paper Statistics**

This part aims to analyze the popularity of economic fields, most active institutions, and most energetic presenters involved in the Summer Institute. To do this, we collected over four thousand observations on Summer Institute topics and presenters since 2018.

Each year, the Summer Institute has been gathering researchers from hundreds of institutions across the United States and abroad. In 2020, for example, economists from 290 institutions presented their papers at the conference. However, this number is slightly lower compared to 2019 and 2018, when 350 and 370 institutions participated in the conference, respectively. At the same time, the composition of the most active institutions by the number of presenters has been quite stable year-over-year. Researchers from Harvard University, The University of Chicago, and Stanford University have consistently been in the TOP 5 by the number of participants and papers presented (Figure 6). Furthermore, the percentage of presenters affiliated with NBER remained stable at about a third of participants since 2018.

Among the most active participants by the number of papers presented this year were Emmanuel Farhi from Harvard University (4 papers), Wolfgang Keller from the University of Colorado - Boulder (3 papers), Ludwig Straub from Harvard University (3 papers), Iván Werning from Massachusetts Institute of Technology (3 papers), and Tania Babina from Columbia University (3 papers). Four out of five economists mentioned above research mainly in the fields of macroeconomics and international economics.

At any given year, the Summer Institute's participants discuss dozens of economics topics from healthcare and social security to corporate finance and international trade. Among the most popular topics since 2018 by the number of papers discussed were IT & Digitization, Labor Studies, Development of American Economy, Aging, and Urban Economics (Figure 7). In addition, at least eighteen papers across many fields addressed the 2020 COVID-19 pandemic this year. Some examples are "Banks as Lenders of First Resort: Evidence from the COVID-19 Crisis" (Li, Strahan, Zhang 2020), "Unintended Consequences of Lockdowns: COVID-19 and the Shadow Pandemic" (Ravindran, Shah 2020), and "The Cost of Privacy: Welfare Effects of the Disclosure of COVID-19 Cases" (Argente, Hsieh, Lee 2020).

As always, the Summer Institute 2020 gathered many economists and provided a robust platform for economic discussions. However, this year was different from 2018 and 2019 for three reasons. First, the number of presenters this year decreased by at least one hundred. Second, a significant share of time was spent discussing the outcomes of COVID-19. Third, the most discussed economics field this year became IT & Digitization compared to Labor Studies last year.

**Video Statistics**

This section seeks to determine the most and least popular live-streams, best performing live-streams, and the live-streams with the highest audience retention rate. To analyze the popularity of the videos, we first look at the basic statistics of how many views each live-stream received. In order to analyze some video statistics, we will look at week by week of the NBER Summer Institute schedule and determine the top three most viewed live-streams, the least

watched live-streams, the most viewed workshops (total views over the number of days which the workshop lasted), and the total views. Week 1 data was not provided in the video data, hence its absence.

Week 2 of the conference spanned July 13-19, during which 31,847 people logged in to YouTube to watch the live-streamed workshops. The most viewed live-stream was one of the Industrial Organization talks[1] with a total of 5,399 total views on YouTube (Figure 8).The second most viewed live-stream was an Entrepreneurship talk that totaled to 1,876 views on YouTube. The third most viewed live-stream was one of the Public Economics talks which totaled 1,792 views on YouTube. The least viewed live-stream was the Methods Lecture-Differential Privacy for Economists with 382 views, and the one of the Crime talks with 413 views. In Week 2 an average of 910 people logged on to watch each live-streamed workshop. The workshop which had the most views was the Industrial Organization workshop which had a grand total of 6,448 views on YouTube.

A total of 30,660 people viewed the workshops during Week 3, which took place July 20-25. In week 3 the most viewed live-stream was one of the Health Care meetings, with 2,483 views (Figure 9). The second most viewed live-stream from week 3 was one of the Development Economics talks, in which 2,343 people tuned in to watch. The third most viewed live-stream was one of the Labor Studies talks totaling to 2,251 views. The least viewed live-stream from week 3 was the Law and Economics Meeting with only 345 people tuning in to the live-stream. An average of 1,179 people tuned in to each live-stream in Week 3. The workshop with the most total views was Labor Studies, which had a total of 7,006 total views across 4 days.

[1] The data given did not present the exact dates of the most viewed talks, so we can pinpoint the most viewed live-streams, but not the exact date which those live-streams took place.

Referring solely to the view count when determining whether a video performs well would leave incomplete results since YouTube collects additional information. One example is Impressions count - Impressions are the amount of times the live-stream appears on a viewer's screen. This gives another variable, Impression Click-Through Rate (%), a percentage on the likelihood that a viewer will click on the thumbnail/video. YouTube also provides the Total Watch Time, which accumulates all the hours viewers spent watching the live-stream, and Average View Duration, which is the average time viewers spent watching a live-stream. Taking all five of these YouTube verified variables into consideration can be used to determine the best performing videos in the collection of NBER's Summer Institute Live-streams (Figures 10 & 11).

**Conclusion**

The overall analysis of trends and demographics throughout the virtual 2020 Summer Institute was conducted to assist in publicizing future NBER conferences as well as providing insight on trends within the economics research community.

Based on the analysis of over 100,000 YouTube views, the viewership of the NBER live streams was mainly comprised of male subscribers from the United States. In addition, the vast majority of viewers used a desktop computer to view the live stream and was in the age range of 25-34. Moving forward in the new age of virtual conferences, NBER may benefit from increased marketing to academics and professionals within each topic of interest. Additionally it may be beneficial to explore alternative and more accessible methods of streaming. This is especially important considering the fact that the smallest age group of viewers was the oldest at ages 45-54

and increased marketing with explicit instructions may help overcome technological barriers the older ages groups may be encountering. Consideration of differing time zones may also lead to an increased presence of international viewers as the majority of live viewers were located within the United States.

IT & Digitization was the most discussed topic this year by a number of papers discussed. Simultaneously, this topic was ranked within the top 3 most viewed videos on YouTube. This proves the point that IT & Digitization represents a strong interest for economists today. Moreover, topics such as IT & Digitization Workshop, Environmental Energy & Economics, and Innovation were all considered as some of the best performing live-streams, which further highlights a growing interest in integrating science and technology into economics. Alongside these, the best performing live-streams generally spanned subjects from markets, industries, government policy and development such as Public Economics, Development Economics, Urban Economics, and Labor Studies. These livestreams covered topics that were arguably more widespread and relevant towards the general global population. This is especially true for Development Economics, which discussed the impact of COVID-19 while also emerging as the best performing live-stream twice in a row during Week 3.

## Graphs & Charts

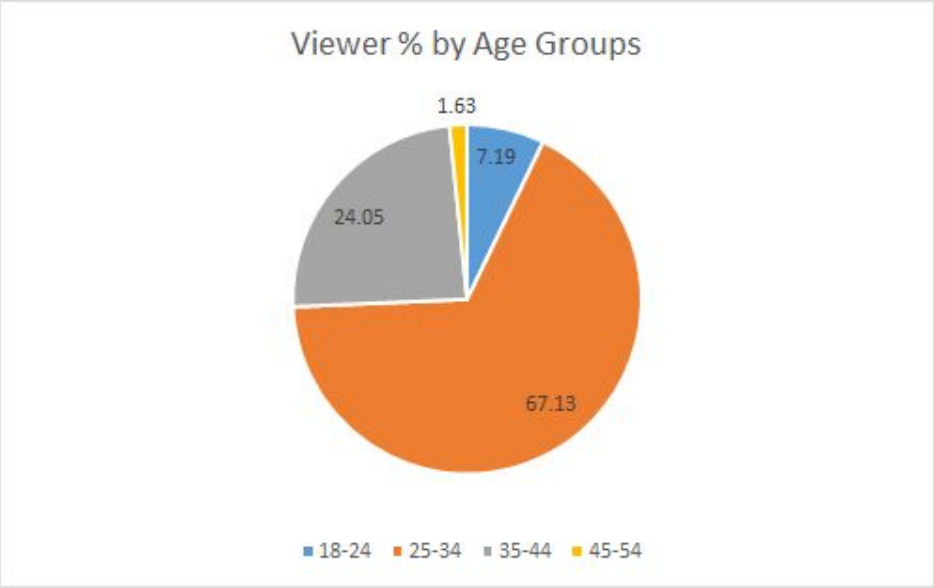


*Figure 1- Percentage of viewers based on age group.*

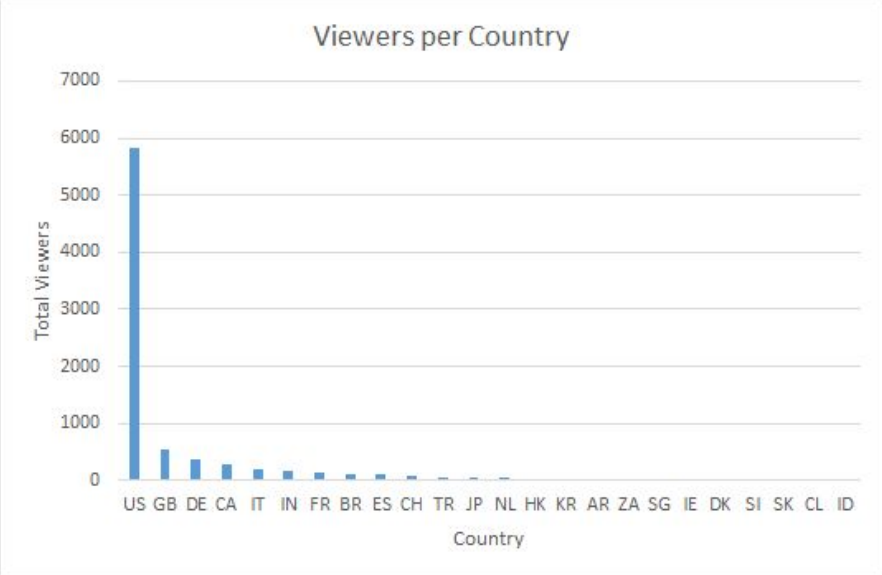


*Figure 2- Number of viewers based on country of origin.*

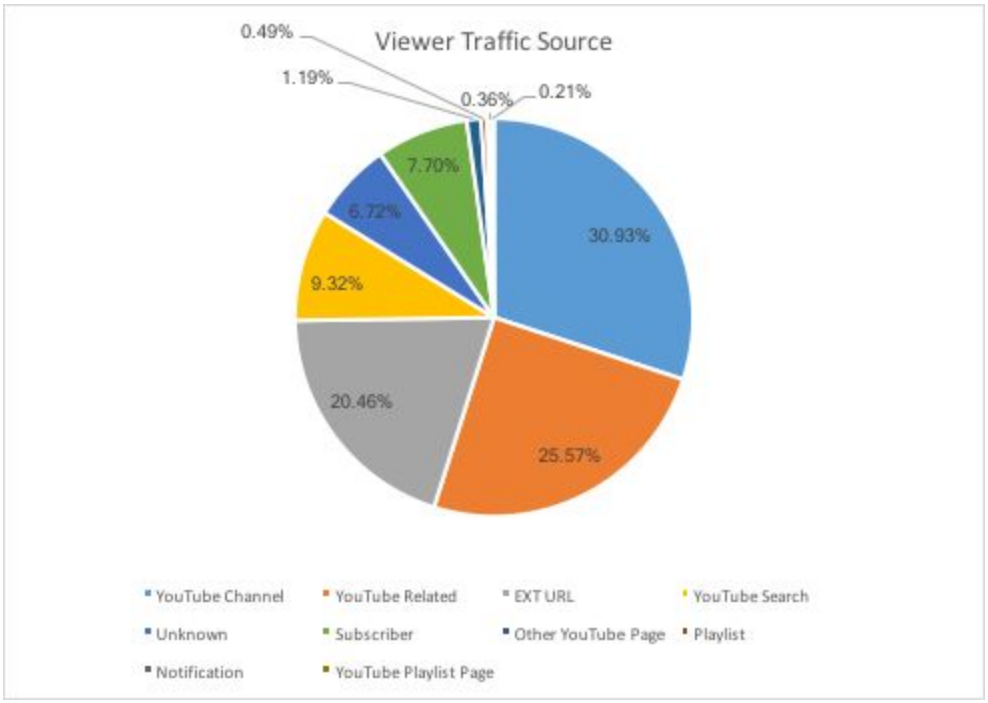


*Figure 3- Conference viewership from the above 10 traffic sources.*

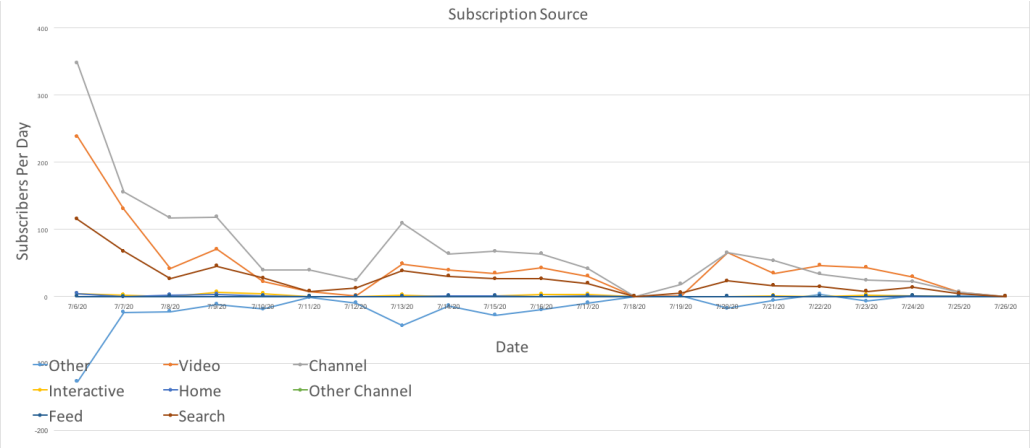


*Figure 4 - Subscriptions were tracked to the following 9 sources.*

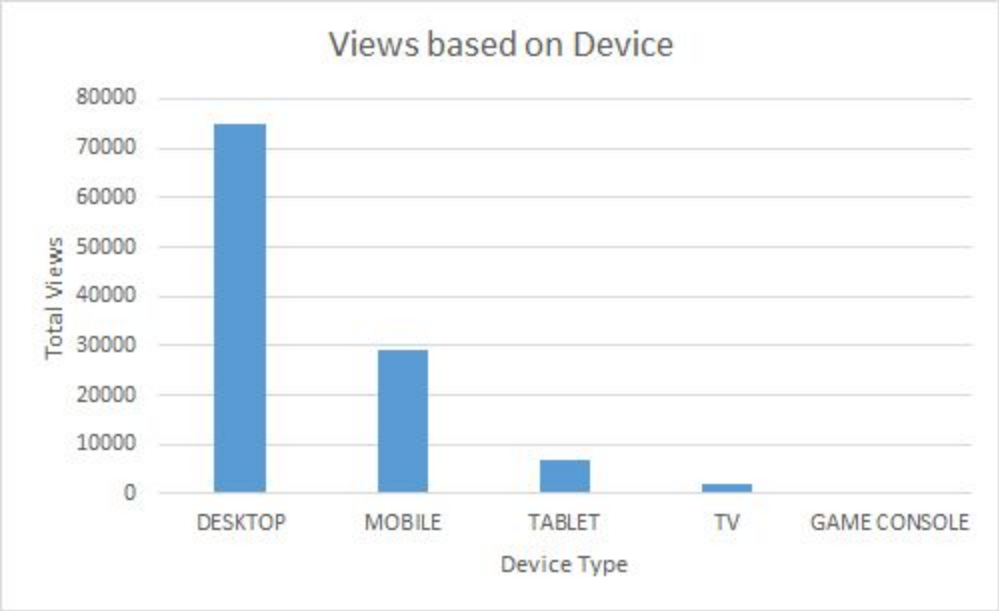


*Figure 5 - Number of views based on device used to view the live stream.*


*Figure 6 - Most active institutions in 2020 by number of presenters.*

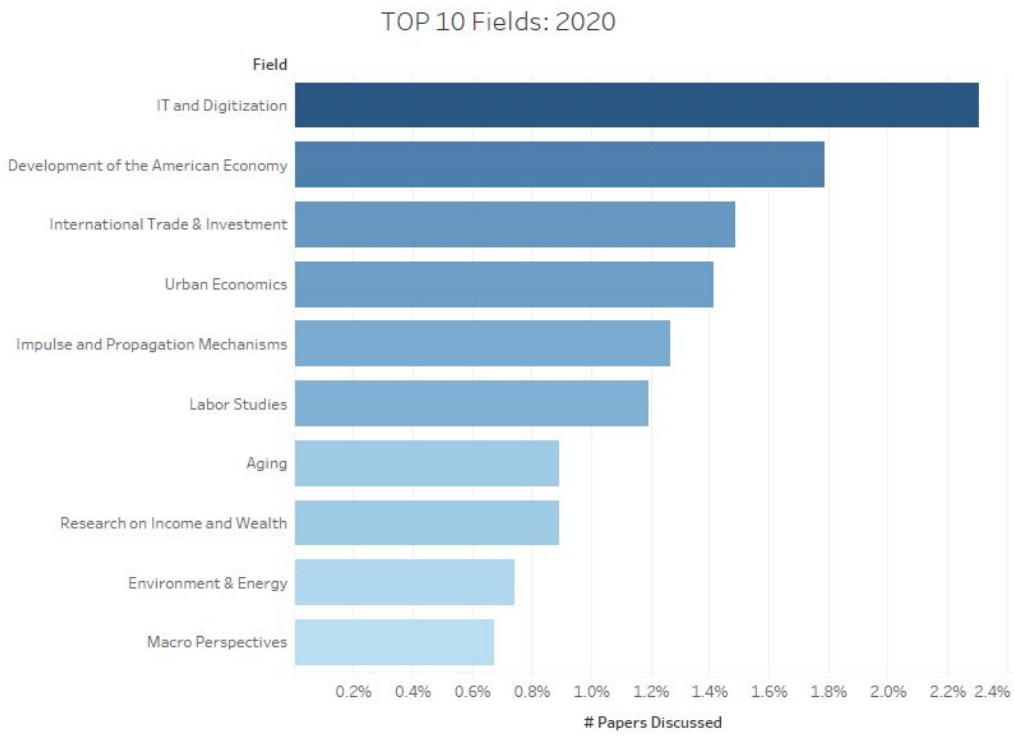


*Figure 7 - Top economics fields discussed by number of papers at the conference.*

| Video Title | Rank | Views |
|---|---|---|
| SI 2020 Industrial Organization | 1 | 5399 |
| SI 2020 Public Economics | 2 | 1792 |
| SI 2020 IT and Digitization Workshop | 3 | 1572 |

*Figure 8 - The top 3 live-streams by views for Week 2.*

| Video Title | Rank | Views |
|---|---|---|
| SI 2020 Health Care | 1 | 2483 |
| SI 2020 Development Economics | 2 | 2343 |
| SI 2020 Labor Studies | 3 | 2251 |

*Figure 9 - The top 3 live-streams by views for Week 3*

| Video title | Views | Watch time (hours) | Average view duration | Impressions | Impressions click-through rate (%) |
|---|---|---|---|---|---|
| SI 2020 Public Economics | 1792 | 951.2483 | 0:31:50 | 7851 | 11.82 |
| SI 2020 IT and Digitization Workshop (PRIT) | 1572 | 542.4629 | 0:20:42 | 7727 | 10.13 |
| SI 2020 Industrial Organization | 1049 | 461.0016 | 0:26:22 | 9416 | 6.41 |
| SI 2020 Public Economics | 1301 | 604.148 | 0:27:51 | 7018 | 9.28 |
| SI 2020 Innovation | 1218 | 587.7496 | 0:28:57 | 18080 | 3.71 |

*Figure 10 - Five videos were qualified as notable during Week 2.*

| Video title | Views | Watch time (hours) | Average view duration | Impressions | Impressions click-through rate (%) |
|---|---|---|---|---|---|
| SI 2020 Development Economics | 1979 | 942.6604 | 0:28:34 | 20136 | 4.21 |
| SI 2020 Development Economics | 2343 | 1116.8817 | 0:28:36 | 19374 | 5.03 |
| SI 2020, Environmental & Energy Economics (EEE) | 1493 | 790.1555 | 0:31:45 | 8791 | 7.09 |
| SI 2020 Urban Economics (URB) | 1700 | 1045.3979 | 0:36:53 | 7087 | 11.9 |
| SI 2020 Urban Economics (URB) | 1480 | 936.8768 | 0:37:58 | 7069 | 10.38 |
| SI 2020 Labor Studies | 1755 | 940.4812 | 0:32:09 | 6149 | 13.68 |

*Figure 11 - Six videos were qualified as notable during Week 3.*