



# **Are short Economics teaching videos liked? Analysis of features driving “Likes” in Youtube**

Meseguer-Martinez, Angel and Ros-Galvez, Alejandro and Rosa-Garcia, Alfonso

Universidad Catolica de Murcia

20 March 2015

Online at <https://mpra.ub.uni-muenchen.de/63039/>  
MPRA Paper No. 63039, posted 21 Mar 2015 06:15 UTC

# Are short Economics teaching videos liked? Analysis of features driving “Likes” in Youtube

Angel Meseguer-Martinez  
*ameseguer@ucam.edu*

Alfonso Rosa-Garcia  
*arosa@ucam.edu*

Alejandro Ros-Galvez  
*agalvez@ucam.edu*

## Abstract

We analyze the factors that determine the number of clicks in the Like button in online teaching videos. We perform a study in a sample of Spanish-language teaching videos in the area of Microeconomics. The results show that users prefer short online teaching videos. Moreover, some other features of the videos have shown significant impact on the number of “likes”. Videos produced by entities other than Universities, conducted by female instructors, where the instructor appears on the screen along with slides or graphic tablets are preferred in terms of “likes” received.

Keywords: Online teaching, videos, economic education, Youtube

JEL codes: A20

## Introduction

Teaching videos are educational resources increasingly used by students. In the field of Microeconomics, some of the first references to the use of online teaching videos date back to the mid 80s of the last century (Bogan, 1984). Recently, the increase in the use of the Internet, and the widespread adoption of the Youtube platform has boosted the demand of online videos, including educational videos (Gilroy, 2010; Sherer and Shea, 2011). Recently, the increasing success of MOOC’s (McAuley et al., 2014; Cowen and Tabarrok, 2014) has also relied in videos as the main educational resource. Of course, the area of Economics and, in particular, Microeconomics, is not an exception (Brown and Liedholm, 2002).

Universities and educational institutions, therefore, set out for the adoption of new ways to reach the student and transfer knowledge through the development of online audiovisual formats. Several studies, some of them in the field of Economics, show that the use of multimedia teaching methods helps in students’ involvement and engagement and also are resources highly valued by the students (Agarwal and Day, 1998; Stone, 1999; Ros Galvez and Rosa Garcia, 2013). Online teaching videos can be produced and broadcasted in several ways. Some of them rely on very basic formats, where instructors explain the lesson to the camera or are simply recorded during the class. However, instructors typically use additional tools to improve the didactic capacity of the video and to make them more attractive. In some cases, slides are used as graphic support for the lessons. In other cases, instructors get support from more

technologically advanced features such as graphic tablets that allow writing and erasing on the screen.

On another vein, some researchers recommend the creation of short videos (Hartsell and Yuen, 2006; Liao, 2012; De Juan et al., 2013). Short duration, along with a more efficient use of the available technology, is considered to increase the attractiveness of the video. In our case, we take a quantitative approach to tackle the question of the features that make users like Microeconomics online videos. Our main research question is whether a preference for short videos exists or not in the case of Microeconomics online videos. Our approach is to study the determinants that drive the number of Likes in videos. With this aim, we gathered information on 352 Microeconomics videos from 13 Universities and other entities. All of them are taught in Spanish language, while the length and type of technology differ widely.

Our study shows that users prefer short videos. This way, viewers are more likely to click on the “Like” button in short videos than in the long ones. We also find that videos recorded by female instructors, and broadcasted by entities other than Universities are more likely to receive “Likes”. Moreover, we also find that viewers prefer videos showing the instructors, along with slides and/or graphic tablets rather than those showing a recorded class.

## Data

We have compiled data of 352 teaching videos in the field of Microeconomics in Spanish. Some of the features such as duration, number of views, and number of “Likes” vary to a large extent. Descriptive statistics are shown in Table 1.

Table 1. Descriptive statistics on Duration (in seconds), Views and Likes (clicks on the Like button).

	Likes	Views	Duration
<b>Average</b>	24,29	8875,86	748,79
<b>Std. Dev.</b>	38,02	13670,03	1025,24
<b>Max</b>	493	167495	6657
<b>Min</b>	0	706	87

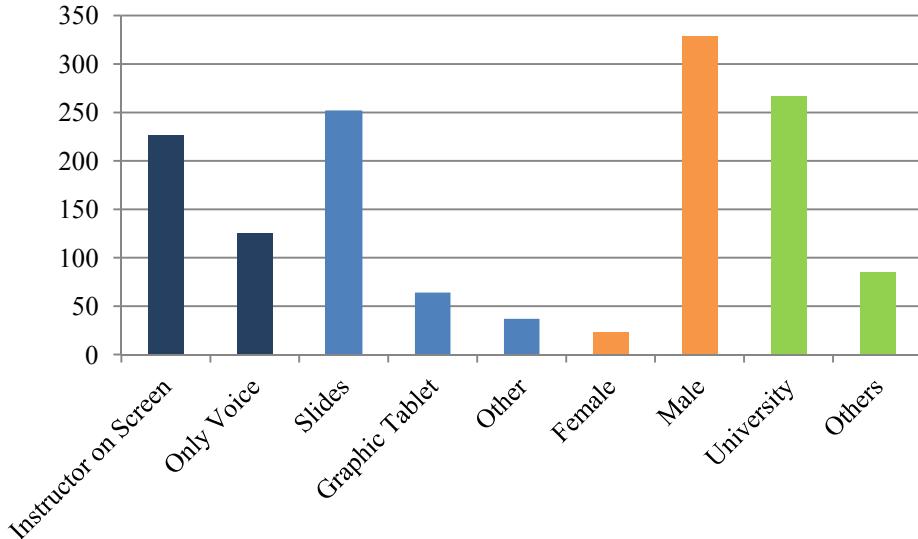
Regarding to the format or technology used in the videos, in some of them the instructor appears on the screen while in others the viewers only listen to a voice. Some videos make use of graphic tablets or slides (generally PowerPoint or similar software), whereas in other videos instructors write on a traditional blackboard or talk directly to the camera. In respect of the instructor gender, most of the videos of the sample have been conducted by men. Finally, our sample of videos is mainly produced by Universities; however a number of them are also produced by private academies, high school institutions and private instructors. These descriptive statistics of the online videos are shown in Table 2 and Figure 1.

Table 2. Videos according to video Format, Instructor Gender, and Institution.

Format	Instructor	Institution
--------	------------	-------------

Instructor on Screen	Only Voice	Slides	Graphic Tablet	Other	Gender		University	Others
					Female	Male		
227	125	251	64	37	23	329	267	85

Figure 1. Videos according to video Format (blue), Instructor Gender (orange), and Institution (green).



## Model

The basic research question is whether there is a relation between the duration of videos and the number of “Likes” that the video receives<sup>1</sup>. Given that “Like” button is seen as a positive affective response of users (Gerlitz and Helmond, 2013), we assume they express their satisfaction over the videos in the Youtube platform when clicking the “Like” button. Accordingly, we expect to find positive relationships between any of the video characteristics that determine user satisfaction and the number of “Likes” that the videos receive.

According to the observed characteristics of the videos we defined the following variables:

- *Views*: total number of views when the data were collected.
- *Daily Views*: average number of views per day since the video is online.
- *Likes*: total number of clicks on the “Like” button.
- *Daily likes*: average number of clicks on the “Like” button.
- *Likes per 1000 views*: average number of clicks on the “Like” button per each 1000 views of the video.
- *Duration*: length of the video, in seconds.
- *Instructor on Screen*: 1 if the instructor is on the screen, 0 only voice.
- *Slides*: 1 if slides are used, 0 otherwise.
- *Graphic Tablet*: 1 if a graphic tablet is used, 0 otherwise.

<sup>1</sup> Note that each user is entitled to click on the “Like” button just once. Therefore, the number of “Likes” in Youtube equals the number of users who clicked on the “Like” button.

- *Female Instructor*: 1 if the instructor is a woman, 0 if is a man.
- *University*: 1 if the video is provided by a University, 0 otherwise.

Obviously, we expect to find a positive relation between Views and clicks in the “Like” button. However, we wonder about the role played by the variables considered in this study in explaining the rest of the variability. In this sense, we aim to test whether the Duration of the videos or any other of the variables is able to explain part of the variability. If this is the case, the results of this research could be utilized to improve the design of online teaching videos.

### **Model 1**

We assume that the number of “Likes” follows a linear relation with the rest of variables:

$$\text{Likes}_i = \alpha_1 \text{Views}_i + \alpha_2 \text{Duration}_i + \alpha_3 \text{Instructor on Screen}_i + \alpha_4 \text{Slides}_i + \alpha_5 \text{Graphic Tablet}_i + \alpha_6 \text{Female Instructor}_i + \alpha_7 \text{University}_i + \varepsilon_i$$

where “Instructor Gender” is 0 if male and 1 if female, “Format” represents three dummy variables cited above, and “Institution” equals 1 when the video belongs to a University.

### **Model 2**

However, we normalized the variables “Likes” and “Views” in order to measure the significance of these variables in a more appropriate manner. Thus, the absolute values of the variables were divided by the number of days that the videos were online at the moment of the study. Therefore, a second model is proposed:

$$\text{Daily Likes}_i = \alpha_1 \text{Daily Views}_i + \alpha_2 \text{Duration}_i + \alpha_3 \text{Instructor on Screen}_i + \alpha_4 \text{Slides}_i + \alpha_5 \text{Graphic Tablet}_i + \alpha_6 \text{Female Instructor}_i + \alpha_7 \text{University}_i + \varepsilon_i$$

where “Daily Likes” and “Daily Views” show normalized data.

### **Model 3**

Finally, we consider a third model that could be more accurate. Given that the characteristics that make a video attractive to the user can influence the number of users clicking the “Like” button, we also study the relation between the number of “Likes” per 1000 views and the characteristics of the video. Model 3 is therefore:

$$\text{Likes Per 1000 Views}_i = \alpha_1 \text{Duration}_i + \alpha_2 \text{Instructor on Screen}_i + \alpha_3 \text{Slides}_i + \alpha_4 \text{Graphic Tablet}_i + \alpha_5 \text{Female Instructor}_i + \alpha_6 \text{University}_i + \varepsilon_i$$

## **Results**

First of all, correlations between “Duration” and “Likes” (-0.0011), “Daily Likes” (-0.055) or “Likes per 1000 Views” (-0.1366), show a small relation between duration and “Likes”. Therefore, at a first glance, the relation between “Likes” and duration is weak.

This suggests that duration is not the main feature explaining the number of clicks on the “Like” button for Microeconomics online teaching videos. For this reason, we set out to analyze additional effects from other potential explanatory variables. In order to disentangle these effects, we ran regressions to find whether Models 1, 2 and 3 explain the number of clicks on the “Like” button. Table 3 shows the results of these estimations.

Table 3. OLS regression of Likes, Daily Likes, and Likes Per 1000 Views over a set of explanatory variables. Coefficients are significant at 10% (\*), 5% (\*\*) and 1% (\*\*\*) . Standard deviations are in parenthesis.

Dependent	Model 1 Likes	Model 2 Daily Likes	Model 3 Likes per 1000 Views
<b>Views</b>	<b>0,0024***</b> <b>(0,0001)</b>		
<b>Daily Views</b>		<b>0,00278***</b> <b>(0,0001)</b>	
<b>Duration</b>	<b>-0,0036***</b> <b>(0,001)</b>	-0,00000164 (0,00000118)	<b>-0,000235***</b> <b>(0,000085)</b>
<b>Instructor on Screen</b>	<b>4,4677*</b> <b>(2,6902)</b>	<b>0,0062**</b> <b>(0,0031)</b>	<b>0,6553***</b> <b>(0,2268)</b>
<b>Slides</b>	2,9064 (3,9292)	<b>0,0089*</b> <b>(0,0046)</b>	<b>0,9006***</b> <b>(0,3310)</b>
<b>Graphic Tablet</b>	4,2067 (4,1697)	<b>0,0110**</b> <b>(0,0049)</b>	<b>0,5997*</b> <b>(0,3514)</b>
<b>Female Instructor</b>	<b>9,1282**</b> <b>(4,1108)</b>	0,0057 (0,0048)	<b>0,6845**</b> <b>(0,3467)</b>
<b>University</b>	-2,4916 (3,1300)	-0,0057 (0,0037)	<b>-0,9055***</b> <b>(0,2608)</b>
<b>Constant</b>	0,9636 (3,8715)	-0,0058 (0,0046)	2,5670 (0,3195)
<b>N</b>	352	352	352
<b>R<sup>2</sup></b>	0,7614	0,7737	0,0708
<b>Adj R<sup>2</sup></b>	0,7565	0,7691	0,0547
<b>F</b>	156,79	168,02	4,38
<b>Prob&gt;F</b>	0	0	0,0003

As expected, results show that the number of “Likes” is mainly explained by the number of views. In this sense, the coefficient of determination ( $R^2$ ) shows high values for Model 1 -including Likes-, and Model 2 -Likes per day-, 0.76 and 0.77, respectively. However, for Model 3 which shows normalized data -likes per 1000 views-  $R^2$  is much

lower. These results mean therefore that the main driver of “Likes” is the number of views of the video.

Additionally, results show significant effects of other variables on the number of “Likes”, including among them the video duration. In order to disentangle these effects we draw attention to Model 3. This model explains the probability that a given user clicks on the “Like” button after a view. Results for this model show that all the variables under consideration are significantly related with the “Likes per 1000 View”. We find a negative and significant effect of Duration on “Likes per 1000 View” at any usual confidence level. In this case, the regression coefficient means that an additional one-second duration will reduce the number of “Likes per 1000 Views” by 0.0002. That is to say that a 10 minute longer video is expected to have 0.141 “Likes per 1000 Views”.

In regard to the rest of the explanatory variables, we also find a negative effect of “University” variable on “Likes per 1000 Views”, meaning that videos produced by universities are not so likely to receive Likes. This suggests that universities may want to consider the convergence of their online teaching videos towards the type of videos created by other institutions such as academies or private instructors.

On the other hand, other variables were also found to have a positive effect on the dependent variable. In particular, results show that videos conducted by female instructors are more likely to receive likes. This is also the case for “Instructor on Screen”. Results show that videos in which instructors appear on the screen receive more likes. This suggests that users prefer to watch the instructor, probably because of the nonverbal language. Moreover, the use of slides or graphic tablets also has a positive effect on the number of “Likes per 1000 Views”. This suggests the use of these technologies is preferred by users rather than the use of traditional blackboards or recorded classes. According to the results, the null hypothesis that slides and graphic tablets have the same effect cannot be rejected ( $F=1.69$ ,  $p\text{-value}=0.1947$ ).

## Conclusion

We analyzed the characteristics of online Microeconomic teaching videos that determine the number of times users click on “Like” button in the Youtube platform. Apart from views, we found that there are other characteristics that play a significant role on the “Likes” that a video receives.

In particular, we find evidence on a preference for short videos. Moreover, Microeconomics teaching videos recorded by female instructors, produced by institutions other than universities, showing the instructor on the screen, and which make use of slides or graphic tablets are significantly more likely to receive “Likes”. These results may support universities to improve the attractiveness of their Microeconomics teaching videos. They should consider analyzing how other institutions create them.

## Literature

- Agarwal, R., & Day, A. E. (1998). The impact of the Internet on economic education. *The Journal of Economic Education*, 29(2), 99-110.
- Brown, B. W., & Liedholm, C. E. (2002). Can web courses replace the classroom in principles of microeconomics? *American Economic Review*, 444-448.
- Cowen, T., & Tabarrok, A. (2014). The Industrial Organization of Online Education. *The American Economic Review: Papers & Proceedings*, 104(5), 519-522.
- De Juan, J., Pérez-Cañaveras, R. M., Girela, J. L., Vizcaya, M. F., Segovia, Y., Romero, A., Martínez-Ruiz, N., Gómez-Torres, M.J., Torrus, D., Castillejo, A., Soto, J.L., Herrero, J. y Martínez, A. (2013). Importancia del uso de videos didácticos en la docencia presencial de las asignaturas de Biología. *XI Jornades de Xarxes d'Investigació en Docència Universitària*, Universidad de Alicante.
- Gerlitz, C., & Helmond, A. (2013). The Like economy: Social buttons and the data-intensive web. *New Media & Society*, 15(8), 1348-1365.
- Gilroy, M. (2010). Higher Education Migrates to YouTube and Social Networks. *Education Digest*, 75(7), 18-22.
- Hartsell, T., & Yuen, S. (2006). Video streaming in online learning. *AACE Journal*, 14(1), 31-43.
- Liao, W. C. (2012). Using short videos in teaching a social science subject: Values and challenges. *Journal of the NUS Teaching Academy*, 2(1), 42-55.
- McAuley, A., Stewart, B., Siemens, G., & Cormier, D. (2014). The MOOC model for digital practice. *American Economic Review: Papers & Proceedings*, 104(5), 514-518.
- Ros Gálvez, A., & Rosa García, A. (2014). Vídeos docentes de Microeconomía: análisis de su impacto externo e interno. *Historia y Comunicación Social*, 18, 75-84.
- Sherer, P., & Shea, T. (2011). Using online video to support student learning and engagement. *College Teaching*, 59(2), 56-59.
- Stone, L. L. (1999). Multimedia instruction methods. *The Journal of Economic Education*, 30(3), 265-275.