

### Introduction

In this study, I examine data of online content creators who post videos on the website YouTube and fund their content creation through the crowdfunding website Patreon. I examine trends in the data over time to analyze whether Patreon is a sustainable mode of finance, and I conduct statistical analysis to assess the correlation between Patreon earnings and views, in addition to Patreon earnings and subscribers, the combination of which I use as a proxy for YouTube success.

### Motivation

The website YouTube pioneered a new way of sharing and consuming videos for entertainment. Viewers have the option of “subscribing” to a creator, in which all of that creator’s subsequent uploads are shown to them in a subsection of the site’s home page. The site is predominantly funded by private companies that pay for 15-30 second ad slots that are shown before, during, or after most videos.

However, the growth YouTube has undergone is only possible thanks to the creativity and free labour of its creators. YouTube has, however, been compensating some of its creators through the YouTube Partnership Program (YPP) by allowing creators to sign up and receive a portion of ad revenue from their videos. Through the YPP, certain creators, known as YouTubers, have been able to turn video making into a profitable career. However, because of their inconsistent month-to-month income being a result of the YouTube algorithm, many YouTubers seek alternative ways of making money.

In this study, I examine data from Patreon, which is the largest crowdfunding site on the web. Patreon functions by allowing fans to support their favourite creators by signing up to pay a monthly fee to them. In return, creators have the option of providing these fans, called “patrons,” with exclusive content.

The scope of existing literature on Patreon lacks a fundamental analysis of long-term trends for creators on Patreon. Additionally, there is little analysis of the experience on Patreon of YouTubers, specifically. My study aims to inform YouTubers how Patreon will impact their YouTube career and how reliably they can expect to receive Patreon revenue.

### Data

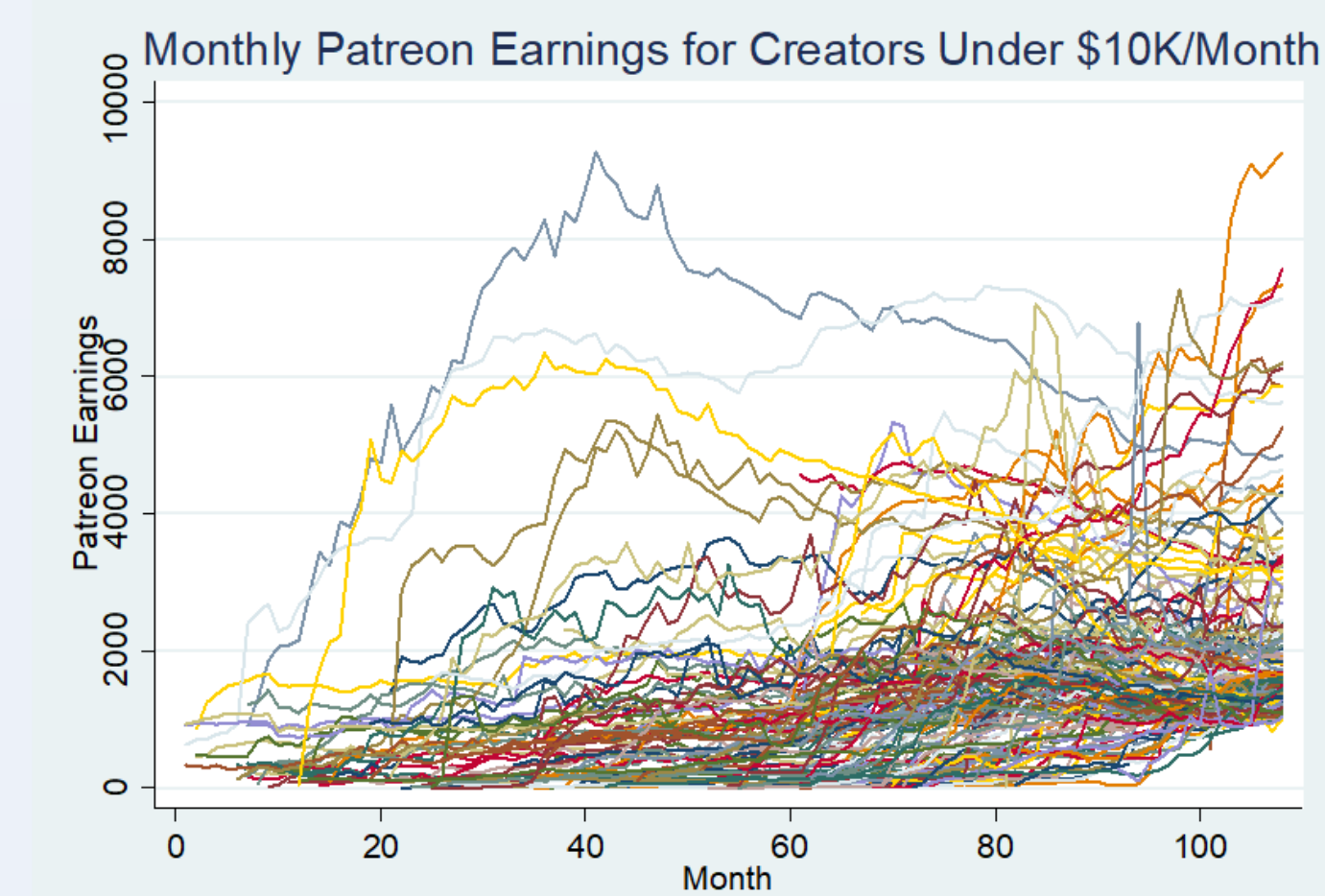
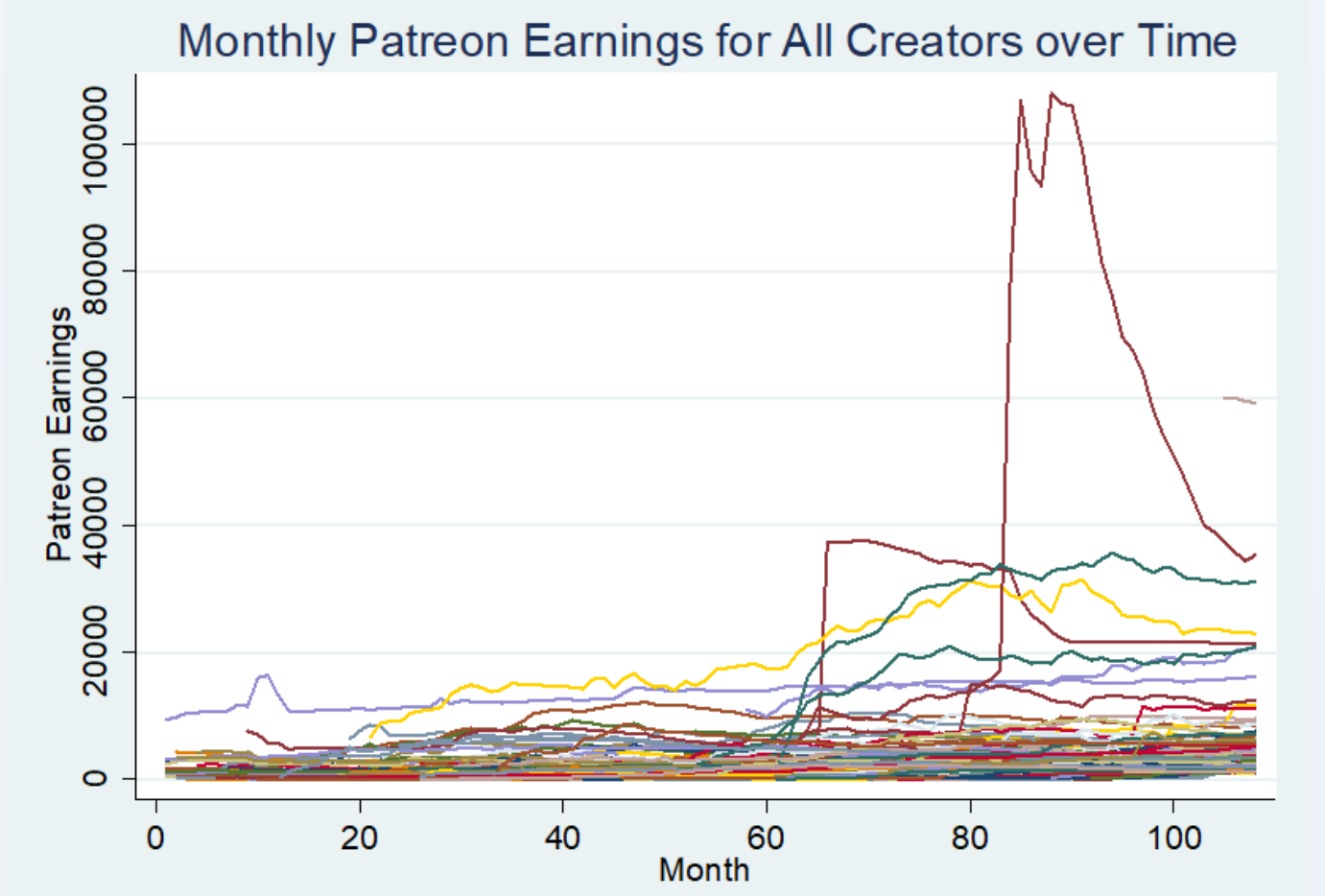
The data is organized into a panel format with unique creators as the cross section and monthly observations as the time dimension. The data was collected from the websites socialblade.com (Socialblade) and Graphtreon.com (Graphtreon) via web scraping.

Socialblade is a partnership site which helps YouTubers navigate the algorithm. It tracks YouTuber data from YouTube and posts them publicly. The variables of interest to me are views and subscribers over time, which are available publicly from March 2021 onwards.

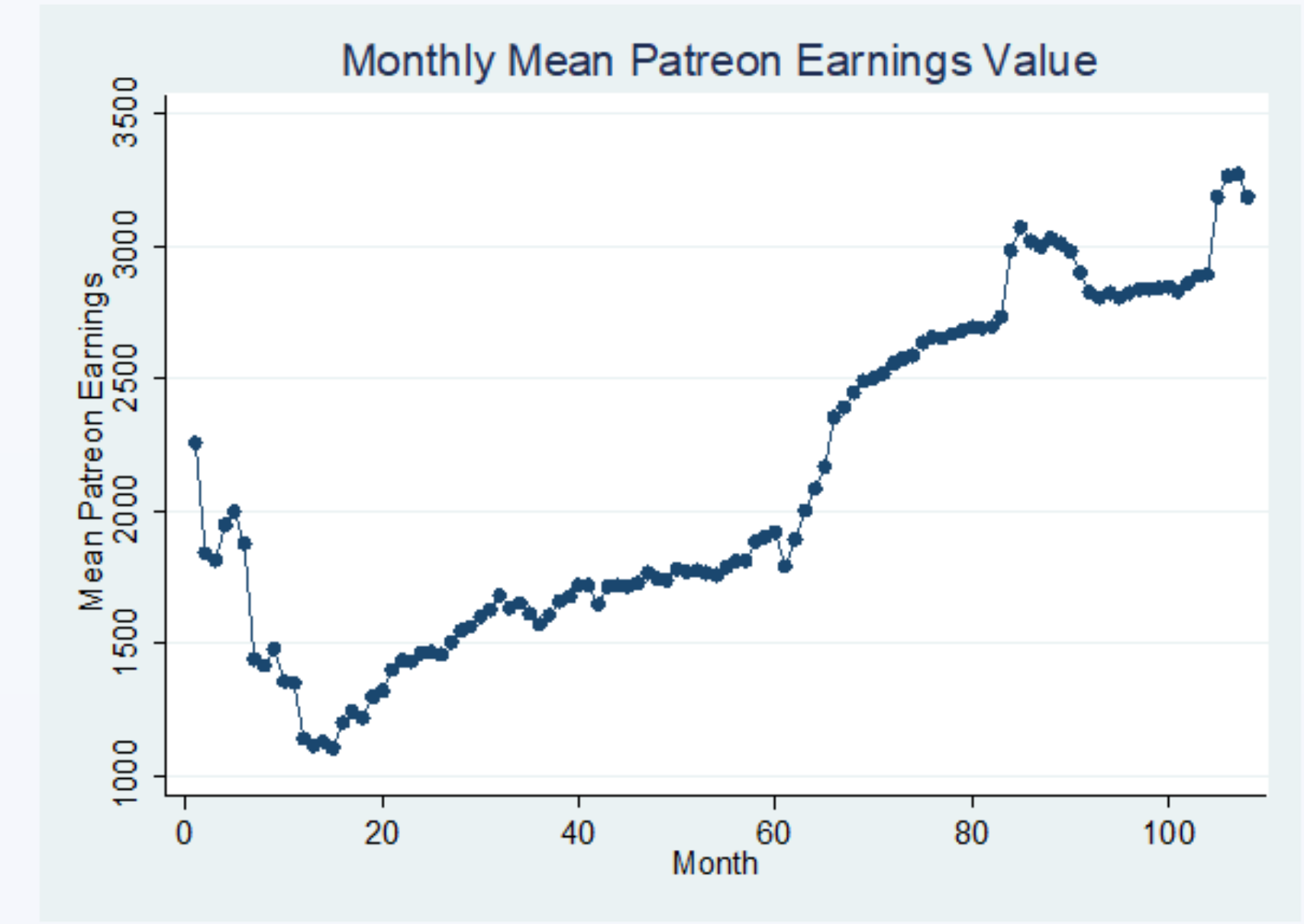
Graphtreon tracks Patreon data by creators and posts it publicly. The degree of data availability is determined by each creator’s privacy settings on Patreon. For the sizeable portion that chose to keep their Patreon settings public, I have their number of patrons and their monthly earnings over time.

In collecting the data, I subsetted Graphtreon’s database to only include creators who made over \$1000 a month as of February 2024, and whose primary platform of creation was YouTube. This enabled me to better compare YouTube and Patreon data.

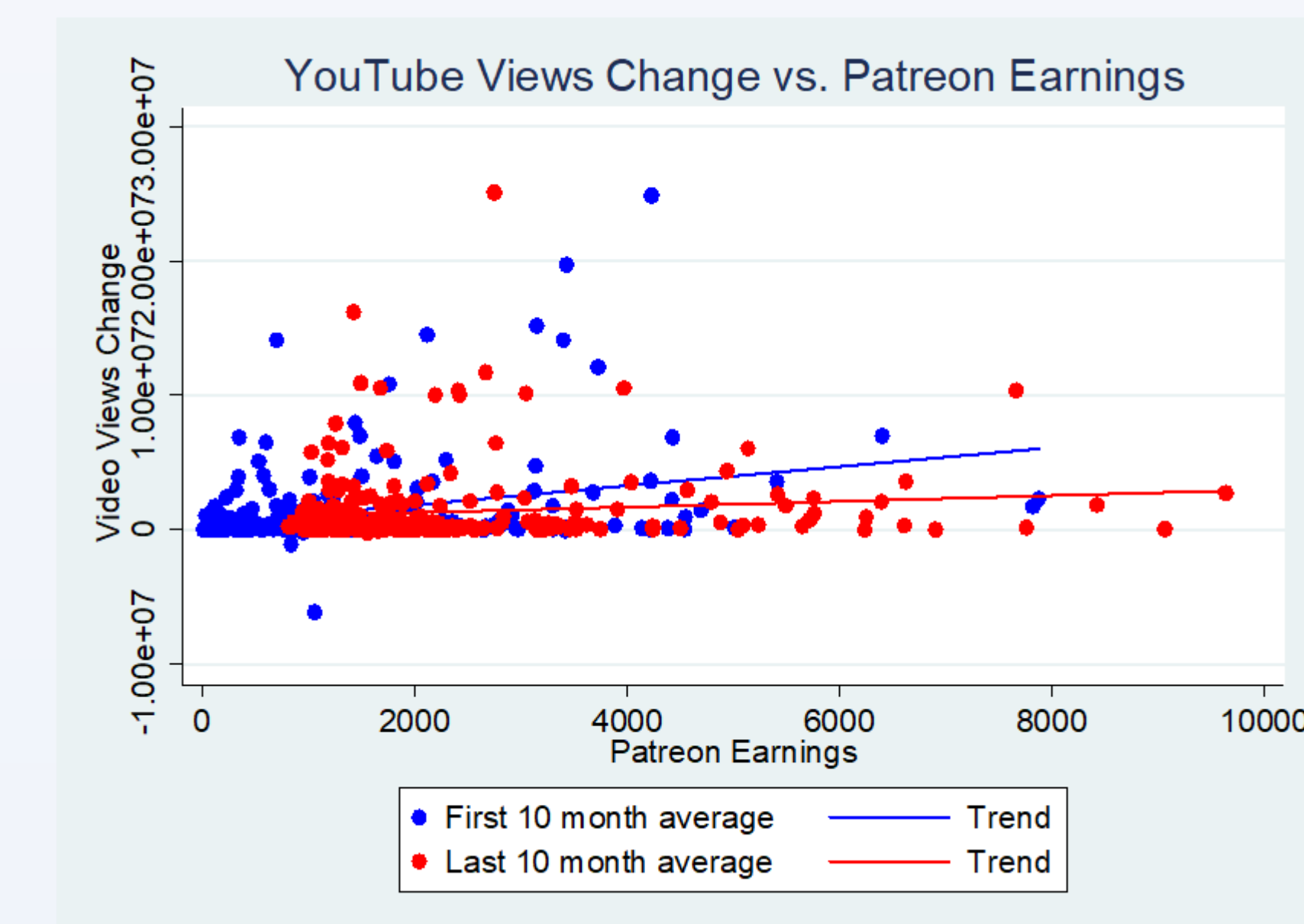
In total, I have 23558 observations for 432 creators. Of these, 152 are on YouTube only while 280 are on both. The YouTube data is truncated in March 2021 while the Patreon data goes as far back as 2013



### Findings



The above graph shows the change in mean monthly Patreon earnings over time. It depicts a steady increase in month 20 onwards. While useful, it does not account for outliers or the composition effect



The above graph plots Monthly YouTube views on Patreon earnings, and the positive slope demonstrates that Patreon success indicates YouTube success. The graph is split into the creator average in the first 10 months of the sample vs. the last 10 months. It shows that Patreon earnings increased proportionally

Fixed-effects (within) regression		Number of obs =		14499	
Group variable: name_id		Number of groups =		275	
R-sq:	within = 0.2533	Obs per group:	min =	4	
	between = 0.2901		avg =	52.7	
	overall = 0.2610		max =	98	
corr(u_i, Xb)	= -0.5293	F(108,274)	=	34.86	
		Prob > F	=	0.0000	
(Std. Err. adjusted for 275 clusters in name_id)					
pt_earnings	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
patrons_0g	5.949484	1.57292	3.78	0.000	2.892941 9.046028
lag_patrons_0g1	7.041966	2.35444	3.02	0.003	2.444272 11.63966
lag_patrons_0g2	6.300351	2.04485	3.08	0.002	2.270663 10.32564
lag_patrons_0g3	5.812649	2.314826	2.51	0.013	1.255544 10.36975
lag_patrons_0g4	5.365758	2.537627	2.11	0.035	.3700336 10.36148
lag_patrons_0g5	5.120418	2.495241	2.05	0.041	.2051372 10.0327
lag_patrons_0g6	4.743581	2.092292	2.27	0.024	.6245703 8.862591
lag_patrons_0g7	3.624863	1.497352	2.42	0.016	.6770865 6.572639
lag_patrons_0g8	3.187439	1.614112	1.97	0.049	-.0098226 6.365075
lag_patrons_0g9	2.850439	1.092267	1.89	0.060	-.0836648 4.220863
patrons_t10	2.612864	1.047981	2.49	0.013	-.5497464 4.675983

The above table depicts the regression of Patreon earnings on the first 10 lags of new patrons, as well as the stock of patrons 11 months ago. The results show that new patrons up to 10 months ago have a significant positive effect on earnings today. The model accounts for time and creator fixed effects.

Fixed-effects (within) regression		Number of obs =		8378	
Group variable: name_id		Number of groups =		280	
R-sq:	within = 0.0074	Obs per group:	min =	1	
	between = 0.0346		avg =	29.9	
	overall = 0.0218		max =	36	
corr(u_i, Xb)	= 0.0792	F(36,279)	=	1.96	
		Prob > F	=	0.0015	
(Std. Err. adjusted for 280 clusters in name_id)					
v_views_0g	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
pt_earnings	52.82018	24.92483	2.12	0.035	3.755565 101.8848

The above figure regresses monthly video views on Patreon earnings. It shows that every additional dollar on Patreon results in 53 new additional views. The coefficient is significant and the regression accounts for month and creator fixed effects

Fixed-effects (within) regression		Number of obs =		8378	
Group variable: name_id		Number of groups =		280	
R-sq:	within = 0.0174	Obs per group:	min =	1	
	between = 0.0522		avg =	29.9	
	overall = 0.0276		max =	36	
corr(u_i, Xb)	= 0.0216	F(36,279)	=	2.17	
		Prob > F	=	0.0003	
(Std. Err. adjusted for 280 clusters in name_id)					
subscriber-g	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
pt_earnings	.3491352	.0764443	4.57	0.000	.1986544 .499616

The above figure regresses monthly new subscribers on Patreon earnings. It shows that every additional dollar on Patreon results in 53 new additional views. The coefficient is significant and the regression accounts for month and creator fixed effects

### Discussion and Summary

My results indicate that there is significant correlation between earnings on Patreon and success on YouTube. However, given the endogenous nature of the data and the issue of reverse causality, I cannot yet make the conclusion that Patreon earnings increase YouTube views and subscribers on their own.

Going forward, I intend to run granger causality analysis to determine the causal nature between YouTube views and Patreon earnings, as well as YouTube subscribers and Patreon earnings. With this, I hope to fully explain the driving factors of YouTube success whether that be Patreon earnings or another unaccounted-for variables.

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