Subscription Economy: impacts on inequality

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Abstract

As more companies and services shift from the traditional one-time purchase to subscription-based services or a combination of both. This is primarily due to subscription-based companies growing 3.7 times faster than the companies in the S&P 500. The economy simultaneously undergoes a gradual transformation. Although subscription-based service seems to give consumers more choices about the products they buy, it increases the overall prices they pay for using the same product over a prolonged period. The increase might seem negligible over small periods, but its impact is significant over longer periods and acts as a lump-sum tax. Its properties as a lump-sum tax raises the question of whether it worsens inequality, like other regressive taxes, by disproportionally lowering poor people's disposable income and increasing the companies' profits. This study has found a weak correlation between SEI (Subscription Economy Index™) and inequality, specifically, the Gini coefficient and the U.S.'s top 0.1% net worth. The SEI is a measurement from Zuora.com's quarterly report that seeks to analyze the growth and resilience of businesses in the subscription sector and view trends of the subscription economy. The correlation is primarily weak because the SEI grows faster than the Gini coefficient and the top 0.1% net worth by a numerical percentage of about 20% each year. However, whenever the percent change in SEI grows, so does the percent change in the Gini coefficient and top 0.1% net worth, and vice versa.

Keywords: Subscription, Inequality, Gini Coefficient.

1. Introduction

Subscription services are appearing everywhere. From daily newspapers to yearly subscription fees for research paper websites, from subscription fees paid for Office 365 products to monthly subscription fees paid after buying a printer, companies from all areas are slowly changing their one-time purchase services to weekly, monthly, or yearly subscription services [1,2].

On the other hand, the amount of money spent on periodic subscription fees increases accordingly. On average, people spend 273 dollars on subscription services in 2021, a 15% increase from 2018, which is expected to grow faster [3].

Intuitively, this increasing amount of money spent on subscription services leads to more income inequality because it is a fixed portion that is growing larger in proportion to the consumers' income, leading to low-income people having a lower percentage of income.

In addition to income inequality, the increased subscription services also lead to other inequalities. Exacerbated income inequality accumulates and increases wealth inequality over time. The fixed price of subscription services acts as a regressive tax, broadening the income gap and causing information asymmetry to anyone who does not pay for the services.

In this study, the relationship between subscription services and inequality will be discussed by studying the relationship between trends in the spending on subscription services and two factors related to income inequality: the U.S. top 0.1% of the population's net worth, as a percentage of the total U.S. net worth, and the U.S. Gini coefficient. Overall, although other literature and economic explanations suggest that the growth of the subscription economy leads to more inequality, the data examined in this study suggests little to no correlation.

2. Literature Review

Not much research has been done on the subscription economy, but they all seem to suggest that it has expanded rapidly.

The research from Dennis K. Berman shows the fast pace at which the subscription economy is expanding, even during the pandemic [4]. The median revenue growth for the 20 companies studied is 24%, while the median compound annual growth rate is around 11%. While this result may be inaccurate due to the small sample size and the companies in the sample being the biggest companies that use subscription services as a major source of income, this is still representative of the general trend of the economy and consistent with the growth rate over the past years.

Similarly, the report from Zuora suggests the subscription economy is growing faster each year [1], higher than the growth for traditional companies (More specifically, 5-8 times faster on average and 3.7 times faster than

companies on the S&P 500 list) [5-8]. Moreover, over the past nine years, subscription spending has grown 6-fold. The major problem with this paper is that it also employed the SEI, for which methods of calculation and data sources need to be clarified. Note that this study, like other previous literature, uses the SEI as an indicator for the subscription economy, and this can be a source of error in the results.

The report by West Monroe suggests that in addition to the subscription economy expanding quickly[9], consumers must be made aware of it, most of the time underestimating their monthly spending on subscription services. The gap between their estimates and the actual spending has also increased over the past years. One interesting fact observed is that although most consumers are unaware of their subscription services spending, an increasing number of customers are happily hooked on their subscriptions, seemingly contradict the prediction that consumers are unhappy about increases in subscription prices. This result does not negate the prediction since the consumers are unaware of subscription spending, and the happiness simply indicates their satisfaction with the product while being ignorant of the prices.

Finally, Paul Gillin finds that the subscription economy is expected to almost double by 2025[10], to 1.5 trillion. He suggests multiple solutions to combat the rising subscription service trends: for customers, use apps to monitor the list of subscription services and cut out the unnecessary ones, decreasing excessive spending on auto-renew subscriptions.

3. Methodology

This study examined the correlation between the subscription economy and income inequality. On the subscription economy side, the growth rate for the subscription economy over the past ten years using the SEI index is used. The SEI index has been cited by multiple literatures not mentioned in the literature review and is generally considered reliable. On the inequality side, two key indexes are used: the Gini coefficient of the U.S. over the past ten years, which gives an estimate of the total amount of inequality. On the other hand, the proportion of the U.S. top 0.1% net worth to the entire U.S. net worth is a good indicator of wealth inequality at the top of the economy.

4. Data and Analysis

Data from Zuora, the Federal Reserve, and fred.stlouisfed.org are used in this study. More specifically, their data about the SEI, the Gini Coefficient, and the net worth of the top 0.1% as a percentage of total net worth are used. The correlation function examines their relationships, so a positive correlation would indicate that the two move in the same direction. In comparison, a negative correlation would mean that the two move in opposite directions.

Table 1 shows the data for the three measurements from 2012 to 2022. No apparent trend can be observed because SEI increased by 425% over the ten years, while the Gini coefficient and top 0.1% net worth increased by 1.22% and 10.3%, respectively.

One noticeable drop in the Gini Coefficient and the top 0.1% net worth is in 2020, each dropping by about 4%. This is caused by Covid 19, which led to a global shortage of goods caused by a shortage of labor.

Table 1. SEI, top 0.1% net worth, and Gini coefficient from 2012 to 2022. [Owner-draw]

Years	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Gini Coefficient	40.9	40.7	41.5	41.2	41.1	41.2	41.4	41.5	39.7	40.6	41.4
0.1%	11.6	12.1	12.3	12.6	12.5	12.4	12.3	12.1	11.6	12.7	12.8
SEI	100	105.5	128.5	152.7	185.7	225.2	285	339.6	384.2	453.1	525

Using Microsoft Excel to calculate the data directly, it has been found that the correlation between Gini Coefficient and SEI is –0.156, while the correlation between the top 0.1% net worth and SEI is 0.341.

This data is unexpected since if the reasoning in the introduction were correct, the correlation between SEI and the Gini Coefficient and the top 0.1% net worth would be a positive number close to 1.

Detrended data would be ideal to investigate whether this is caused by the low level of change overall or whether it shows a low correlation between the data. The data is detrended by using the percent change between the years instead of the data. The numerical differences in the data between consecutive years were not used because there are not enough significant changes in the Gini coefficient for the data to be meaningful.

Table 2 includes the percent changes in the Gini coefficient, 0.1% net worth, and SEI from previous years.

There is a significant decrease in percent change for all 3 data in 2020 due to COVID-19. Other than that, the data seems perfectly normal except for the growth of SEI in 2013. The data is also visualized in Figure 1.

Table 2. Percent changes in SEI, top 0.1% net worth, and Gini coefficient from 2013 to 2022. [Owner-draw]

Years	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Gini Coefficient	-0.489	1.965	-0.723	-0.243	0.243	0.485	0.242	-4.337	2.267	1.970
0.1%	4.310	1.653	2.439	-0.794	-0.8	-0.806	-1.63	-4.132	9.483	0.787
SEI	5.5	21.8	18.8	21.6	21.3	26.6	19.2	13.1	17.9	15.9

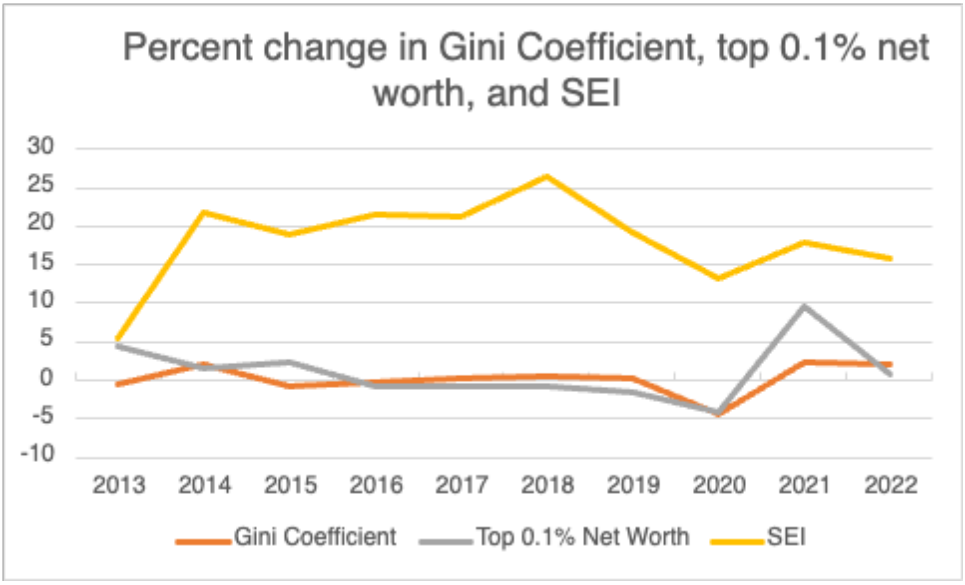

Figure 1. Percent Change in Gini Coefficient, top 0.1% net worth, and SEI from 2013 to 2022 [Owner-draw]

Again, using the correlation function, It has been found that the correlation between percent changes in the Gini coefficient and SEI is 0.343, while the correlation between percent changes in the top 0.1% net worth and SEI is -0.224.

This correlation is again surprising since, on the line graph, the Gini coefficient and SEI changes seem very consistent. However, they are far apart and have differences in different magnitudes.

Even more surprising, the data from Tables 1 and 2 suggest no correlation between subscription economy and inequality since, for both indicators, the correlation from Tables 1 and 2 have opposite signs and negligible magnitudes.

There are multiple possible explanations for this result.

First of all, the data source can be inaccurate. The SEI index is published yearly in a report by Zuora.com, and no information related to how the index is calculated is published.

Second, the data might need more significant figures to be accurate for the changes. From 2016 to 2017, the Gini coefficient and the 0.1% net worth changed by exactly 0.1. This is why the lines for the Gini coefficient and top 0.1% net worth in the graph for Table 1 would look like two straight lines and the curves in Graph 2 for them are close to 0.

Thirdly, the correlation itself could exist but be simply weak. Inequality is affected by several factors, and subscription services can be just one that is too small to have big influences on its own. Other inequality measurements related to subscription services, for example, the income distribution of a particular subscription service's users, would be better.

5. Conclusion

Initially, the subscription economy seems deeply related to inequality, mainly because of its properties like a regressive or lump-sum tax. After examining the data

from 2012 to 2022, the inference seems to be refuted, but possible explanations for such data exist and are persuasive. More studies involving more specific inequality indicators among the subscribers are needed to confirm the relationship.

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