Covid-19 and Recession or Shecession?

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Abstract:*The present research paperhighlights the women employment and the tremendous decline of women's employment rate during recent years due to pandemic attack on our county United states of America. we all know that women as a warrior fought very well to achieve their potential from past several years, and history tells us about their victory and struggle to success over gender inequalityin work environment. Working women pick up a considerable measure of new skill and abilities associated with driving an organization as well as with personal improvement. my research work is to overview the impact of pandemic on women employment in 2020 by 2 sample t-test (took 2019 and 2020 monthly women's employment as my sample data). I also tried to quantify the relationship between two variables that is covid-19 cases from starting of outbreak till December2020 and the change in employment opportunity during that period through linear regression analysis. Research also highlighted the struggle of women with different racesand situation of job availability in most women friendly industries where women are the leading to provide services. I also tried to discuss and strategizethe plan to enhance the current women employment opportunitiesfor the productive growth from the Recession and She-cession.*

Keywords: Women Employment, Covid-19 , Regression Analysis , Hypothesis testing

I.   Introduction

Since 1990, the employment rate of women[1] in the United States has stayed steady. In 1990, the female employment rate was 54.3 percent, and in 2020, the employment (Kashen Julie, October 30, 2020,) (Sargsyan Anahit, 2020)rate was at 51.5 percent. However, it reached a peak in 2000 at 57.5 percent.

Women in the workforce have historically not been treated the same way as men. There are many inequalities in all aspects of work, from salaries to promotion, although worldwide, the number of women joining the workforce has been increasing. Women were originally relegated to being stay-at-home wives and mothers who were supposed to take care of the household while men worked. For a long time, women were not able to attend university, which barred them from gaining an education and a professional job. However, as society developed, women have been granted equal access to university. Despite this, the unemployment rate of women in the United States has fluctuated significantly since 1990. In 2017, Minnesota was the state with the highest percentage of women participating in thecivilian labor force. Today, the wage gap is still a problem for women, but has improved from years past. The wage gap is where women are paid less for doing the same job as men, despite having the same level of education and experience. One of the industries that saw the most disparity in pay between men and women in the United States was the finance and insurance industry.

According to Bureau of labor statistics one group in particular hits specifically extremely hard and that is working moms. In one month alone that is in September 2020 865,000 women left the labor force, that is about four time the number of men. Because most employment is most concentrated in industries most effected by the virous retail and hospitality. That number is even worse for single mom a study from the national bureau of economic research estimates that 15 million single mothers will be negatively impacted by the pandemic. (source National Bureau of Economic Research)

As women's job are more concentrated on retail and hospitality, we can dive in deep to analyze more closely for the impact. So, Bureau of labor statistics reported unemployment in February 2021, 13.5% in hospitality industry which is more than double if we compared with last year in fab 2020 as 5.7%. Now the in-retail industry reported unemployment rate in February 2021 is 6.7% which is also up if we look at 2020 fab that is 4.5%. So,each industry has higher unemployment rate than has national average 6.3%. Although unemployment rate in 2019 and 2020 was 3.6 % and 8.3% among women.

Table:1 U.S. female workforce: unemployment rate 2019-2020

Unemployment rate of women in the United States from 1990 to 2020

'2019	3.6	in %
'2020	8.3	in %

MY ANALYSYS /FINDING

Table:2

year	Employment Level - Women, Thousands of Persons, Monthly, Seasonally Adjusted	Cumulative Covid-19 cases
1/1/2020	74762	0
2/1/2020	74865	0.19
3/1/2020	73234	0.15219
4/1/2020	61478	0.751273
5/1/2020	63530	0.1501876
6/1/2020	66444	0.2172212
7/1/2020	67520	0.368546
8/1/2020	69063	0.5431046
9/1/2020	68880	0.6662003
10/1/2020	70131	0.8065615
11/1/2020	70542	0.11413788
12/1/2020	70350	0.17314834

SUMMARY OUTPUT

Table:3

Regression Statistics	
Multiple R	0.44
R Square	0.19
Adjusted R Square	0.11
Standard Error	3866.34
Observations	12.00

ANOVA

Table:4

	df	SS	MS	F	Significance F
Regression	1.00	36109936.70	36109936.70	2.42	0.15
Residual	10.00	149485535.55	14948553.55		
Total	11.00	185595472.25			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	71493.35	1833.11	39.00	0.00	67408.92	75577.78
X Variable 1	-6562.79	4222.55	-1.55	0.15	-15971.22	2845.64

RESIDUAL OUTPUT
Table:5

Observation	Predicted Y	Residuals	Standard Residuals
1.00	71493.35	3268.65	0.89
2.00	70246.42	4618.58	1.25
3.00	70494.56	2739.44	0.74
4.00	66562.90	-5084.90	-1.38
5.00	70507.70	-6977.70	-1.89
6.00	70067.77	-3623.77	-0.98
7.00	69074.66	-1554.66	-0.42
8.00	67929.07	1133.93	0.31
9.00	67121.22	1758.78	0.48
10.00	66200.06	3930.94	1.07
11.00	70744.29	-202.29	-0.05
12.00	70357.01	-7.01	0.00

PROBABILITY OUTPUT
Table:6

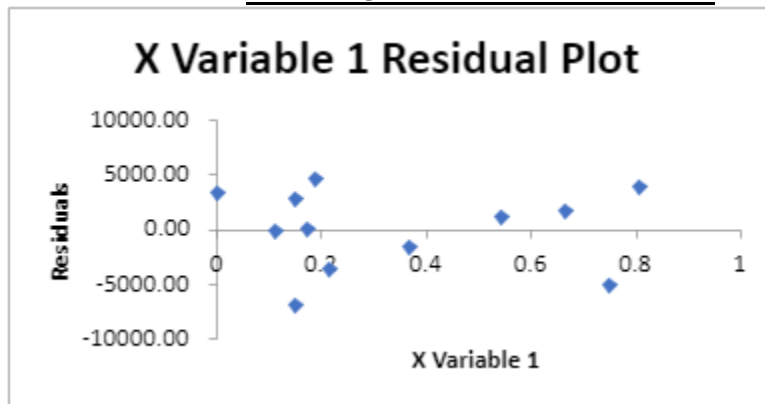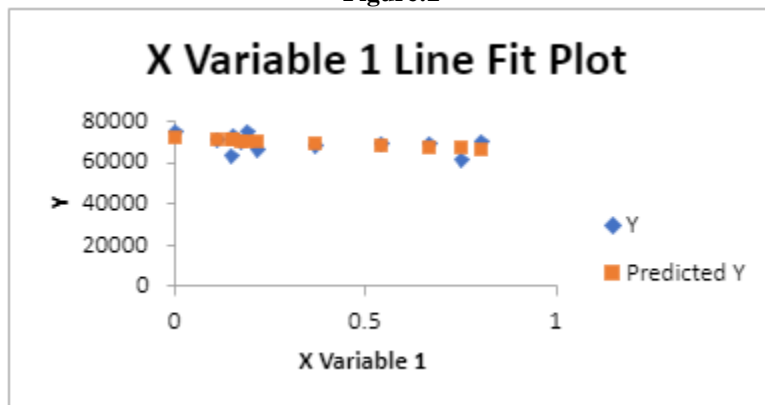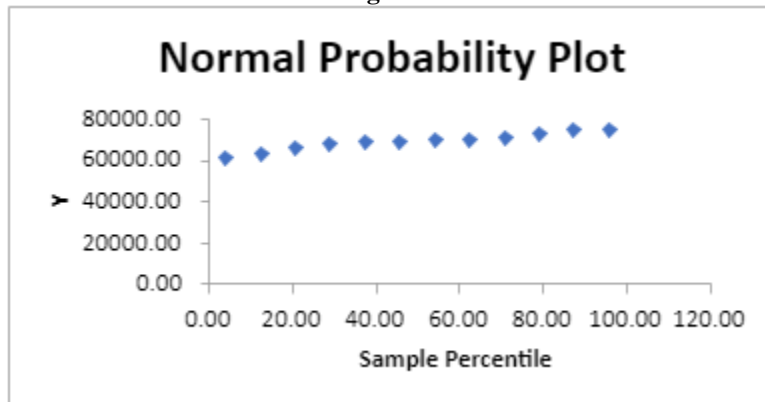| Percentile	Y
4.17	61478.00
12.50	63530.00
20.83	66444.00
29.17	67520.00
37.50	68880.00
45.83	69063.00
54.17	70131.00
62.50	70350.00
70.83	70542.00
79.17	73234.00
87.50	74762.00
95.83	74865.00

Figure:1

Figure:2

Figure:3

X coordinates represents -Change in cumulative number of positive cases in United States.

Y coordinate represents-Change in women'semployment in United States.

A= -6562.79**B=**71493.35**R^2=.19**

R=-0.44

Here is some important piece of information – **R** is the correlation co-efficient; it tells us how close to perfect or positive/negative correlation in this case and it is -.44

R squared is co-efficient of determination and that is 0 .19 and if we need to interpret the meaning of that we say that 19 % of the variability in the y variable which is our women's employment can be accounted by the variability in the x variable (cumulative number of COVID-19 cases) so concisely we can say 19 % of variability in the Women's employment can be accounted by the variability in cumulative number of cases. The remaining 81% is coming from unexplained factors that are outside of the scope of problem, natural factors, are outside of the scope of concern here.

Sometimes these results are come up if some months give drastic dependence of change than gradually coming up so it is hard to blame only one thing as a cause overall.

Here equation of the regression line is – **Y = -6562.79 X + 71493.35**

Y = B+ AX Here, B is **71493.35** which is the value of Y when X is 0. But in this case the Cumulative number of positive cases can never be practically zero during that period. A is -**6562.79** which is the number of changes in Y for each one unit change in X. So, by this regression equation we can conclude that increase in Cumulative number of positive cases decrease the women's jobacross the nation by**6562.79** degree.

2020 employment level- Seems She cession

Here is my analysis to see how bad the situation was during 2020 and onwards.

Tabel:7

Frequency: Monthly observation date	EmploymentLevel - Women, ThousandsofPersons, Monthly, SeasonallyAdjusted	Frequency: Monthly observation date	EmploymentLevel - Women, ThousandsofPersons, Monthly, SeasonallyAdjusted
1/1/2019	73628	1/1/2020	74762
2/1/2019	73757	2/1/2020	74865
3/1/2019	73689	3/1/2020	73234
4/1/2019	73695	4/1/2020	61478
5/1/2019	73635	5/1/2020	63530
6/1/2019	73726	6/1/2020	66444
7/1/2019	73945	7/1/2020	67520
8/1/2019	74290	8/1/2020	69063
9/1/2019	74526	9/1/2020	68880
10/1/2019	74688	10/1/2020	70131
11/1/2019	74582	11/1/2020	70542
12/1/2019	74740	12/1/2020	70350

Economic Research Division, Federal Reserve Bank of St. Louis

T-Test: Two-Sample Assuming Equal Variances and .05 significance level

State: wish to test the following hypothesis at the α=.05 level

H0: μ1=μ2

H1: μ1≠μ2

Where μ1 is the true mean number of employments in 2019

μ2 is the true mean number of employments in 2020.

Table:8

	Variable 1	Variable 2
Mean	74075.08	69233.25
Variance	204663.54	16872315.66
Observations	12.00	12.00
Pooled Variance	8538489.60	
Hypothesized Mean Difference	0.00	
df	22.00	
t Stat	4.06	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.72	
P(T<=t) two-tail	0.00	
t Critical two-tail	2.07	

Conclude: With a **P** value zero, which is less than any reasonableα value, **I reject H0**. There is overwhelming evidence to support the claim that there is difference in the true mean number of employments in 2019 and employment in 2020.

Women's unemployment rate 2019-2020
Table:9

Industry and class of worker	Women	
	2019	2020
Total, 16 years and over	3.6	8.3
Nonagricultural private wage and salary workers [2]	3.4	8.7
Mining, quarrying, and oil and gas extraction	2	7.4
Construction	3.8	7.5
Manufacturing	3.5	7.5
Durable goods	3	7
Nonmetallic mineral products	2.2	5.1
Primary metals and fabricated metal products	3.3	5.9
Machinery manufacturing	3	4.1
Computers and electronic products	2.2	2.7
Electrical equipment and appliances	1.1	6.4
Transportation equipment	3.6	10.3
Wood products	2	4.6
Furniture and related products	4.6	6.2
Miscellaneous manufacturing	3	8.7
Nondurable goods	4.1	8.1
Food manufacturing	5.7	8.7
Beverage and tobacco products	2.5	8.1
Textiles, apparel, and leather	4.8	11.3
Paper manufacturing and printing	2.6	9.1
Petroleum and coal products	–	–
Chemicals	2.1	5
Plastics and rubber products	5	6.7
Wholesale and retail trade	4.5	9.4
Wholesale trade	3.3	5.8
Retail trade	4.7	9.9
Transportation and utilities	3.9	11.3

Transportation and warehousing	4.2	12.6
Utilities	2.1	2.4
Information)	3.5	8.5
Publishing, except Internet	4.3	8.4
Motion pictures and sound recording industries	5.1	20.8
Broadcasting (except internet)	2.6	2.1
Telecommunications	3.1	5.2
Libraries, archives, and other information services	–	11
Financial activities	2	4
Finance and insurance	1.9	3
Finance	1.9	2.7
Insurance	1.9	3.6
Real estate and rental and leasing	2.3	7
Real estate	2.4	6.7
Rental and leasing services	1.6	10.8
Professional and business services	3.8	7.5
Professional and technical services	2.7	5.2
Management, administrative, and waste services(	6.1	12.3
Administrative and support services	6.3	12.6
Waste management and remediation services	1.4	8
Education and health services	2.5	5.9
Educational services	3.4	8
Health care and social assistance	2.3	5.5
Hospitals	1.3	2.5
Health services, except hospitals	2.4	5.7
Social assistance	3.9	11.2
Leisure and hospitality	5.2	19.2
Arts, entertainment, and recreation	5.2	23.6
Accommodation and food services	5.1	18.3
Accommodation	4.9	24.7

Food services and drinking places	5.2	17.3
Other services	3.4	11.5
Other services, except private households	3.1	11.1
Repair and maintenance	3.9	8.5
Personal and laundry services	3.2	16.9
Membership associations and organizations	2.8	4.9
Private households	4.7	13.2
Agricultural and related private wage and salary workers[2]	10.5	11.5
Government workers	2.4	5.5

So after looking the unemployment data above given by US bureau of labor statistics everyone can see that how true is the name of this research paper. There are more than 65 industries listed in this table and not a single industry is there who is not showing the increased women unemployment rate. Compared to 2019 and 2020 data

Unemployment different race

From the table below about the unemployment rate in 2020, we can see that most effected among all women are Hispanic women than black and Asian. I found the reason behind that is mostly retail, hospitality industry served by Hispanic and black ethnic women or man.

Table:10

Unemployment rate by sex, race and Hispanic ethnicity, 2020 annual averages

Race and Hispanic ethnicity	Women	Men
Total	8.3	7.8
White	7.6	7
Black	10.9	12.1
Asian	9.6	7.8
Hispanic	11.4	9.7

Notes: Refers to people 16 years of age and older. Data for the individual race groups do not include people of two or more races. Hispanics can be of any race.

Source: 2020 annual averages, Current Population Survey, U.S. Bureau of Labor Statistics

Suggestions to Improve Women's conditions after Pandemic-
- Now it is time to pay back to all women for their effort to achieve a place in each and every industry as an active participant, so government should make proper arrangement to help them after covid –19 unemployment impact.
- Inequality should be watched in each sector.
- Proper management for working moms with flexible working hours.
- Aid and grants should be provided more for women centered industries like – service, hospitality, retail, education etc.
  - To stop gender discrimination and help both men and women combine jobs with family care responsibilities.
  - No more wage discrimination

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