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Empowering Women Entrepreneurs: The Gig Economy and Cloud Kitchens in Odisha

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Abstract

This study explores evolution of the cloud kitchens and its impact on the development of women entrepreneurs in Odisha, with a specific emphasis on the role of the gig economy. The research examines the influence of cloud kitchen operations on entrepreneurial growth, mediated by factors such as technology adoption, market reach, and socioeconomic conditions. Utilizing a quantitative approach, data were collected from 365 women entrepreneurs in Cuttack and Khordha districts through structured questionnaires. Descriptive statistics, reliability test, correlation & multiple regression analysis were used to evaluate the relationships amongst variables. The findings point to a robust general model that may account for 73.5% of the variations in entrepreneurial growth. Although there was no apparent direct correlation between the use of cloud kitchens and entrepreneurial success, socioeconomic factors were revealed to be an important mediating element. Market reach and technology adoption did not considerably moderate the link. The research highlights the need of augmenting the socioeconomic backing for female entrepreneurs and proposes more investigation into technology and marketing strategies for the development of cloud kitchen business***.***

Keywords: Gig Economy, Cloud Kitchens, Women Entrepreneurs,

Introduction

India is a country that genuinely values its cuisine, with a culinary landscape heavily impacted by its diverse cultures and customs. People's dining habits have changed considerably over time, owing to a growing middle class, higher disposable incomes, and changing lifestyles. This progress has coincided with technology improvements, resulting in an improved food service paradigm known as the cloud kitchen. Unlike typical restaurants with actual dining areas, cloud kitchens are solely dedicated to completing online orders via popular delivery services such as Swiggy, Zomato, and Food Panda etc. India's cloud kitchen market has been seeing erratic growth. Specialists predict that the food delivery market will grow to $13 billion by 2025, with cloud kitchens alone expected to reach $2 billion by 2024, a huge increase from $400 million in 2019. Cloud kitchens' rapid growth might be attributed in great part to their convenience and cost-effectiveness. By eliminating real estate expenditures and reducing personnel requirements, these kitchens enable small-scale businesses to enter the food service industry with a reduction in financial barrier. While the notion of cloud kitchens is not new—take-out pizza services have existed since the 1950s—the modern version gained traction in India with the debut of Faasos by Rebel Foods in 2003. Rebel Foods has since expanded into a multi-brand powerhouse, indicating the enormous potential of cloud kitchens in India's growing food sector. This concept is transforming not only how people consume food, but also how food businesses operate. The rise of the gig economy has played an important role in this transition. The gig economy, characterized by flexible, on-demand labor arrangements, has created new economic opportunities, particularly in the delivery and service industries. Cloud kitchens are now easily linked with delivery vehicles and streamlined logistics thanks to digital platforms, greatly lowering operational hurdles for budding food businesses. In this context, cloud kitchens and the gig economy are emerging as major accelerators for entrepreneurship, particularly among women in India. They provide an exclusive chance for women to operate food enterprises from home or in other flexible settings, allowing them to balance career objectives with household duties. For women in Odisha, where conventional social and economic constraints sometimes prevent formal

entrepreneurship, cloud kitchens provide a viable road to financial independence and commercial success. This study aims to explore the impact of cloud kitchens on the growth of female entrepreneurs in Odisha, with an emphasis on how aspects such as the gig economy, technology adoption, market reach, and socioeconomic conditions influence this connection. By investigating these relationships, the study seeks to provide awareness on how cloud kitchens and gig platforms are transforming the entrepreneurial paths of women in Odisha, emphasizing the transformational potential of this fresh business model for their personal growth & professional development as well.

REVIEW OF LITERATURE

TABLE-1

AUTHOR /YEAR	**FINDINGS**
Deepali (2024)	The paper focuses on opportunities for cloud kitchen owners in an open network, highlighting cost savings, technology integration, and marketing challenges, which are relevant to the gig economy.
Svancár (2024)	The Cloud Kitchen platform leverages AI to streamline food delivery processes, improving efficiency and customer satisfaction. This aligns well with the gig economy's emphasis on flexible work arrangements and service delivery.
Reinaldilas, et al (2023)	The paper examines how Cloud Kitchen operations influence user loyalty through service quality and the marketing mix, without directly addressing the gig economy aspect.
Beniwal & Mathur (2022)	The paper explores the effect of Cloud Kitchens on the restaurant industry, stress their role towards enhancing efficiency and driving growth. It does not specifically address the gig economy, focusing instead on the operational aspects of Cloud Kitchens.
Khan et al. (2022)	The study focuses on the Cloud Kitchen Model (CKM) in Dhaka, not directly on the gig economy. Cloud kitchens offer cost advantages and collaboration opportunities, but the gig economy is not the primary focus.
Maurya, et al. (2021)	The anticipated market for cloud kitchen is to range $2 billion in India by 2024. The growth has been accelerated by the COVID-19 pandemic, with increasing investments from domestic and international companies.
Mirosa and Bremer (2020)	Sustainability is a key area for improvement in cloud kitchens. The environmental impact of food delivery and the broader sustainability pillars must be addressed in future operations. Food delivery and the broader sustainability pillars must be addressed in future operations
H. M. Moyeenudin (2020)	The cloud kitchen concept is an emerging trend globally. It is widely adopted by multi-cuisine and chain restaurants to remain competitive, offering takeaway or home delivery options without dining facilities

Nitesh Chouhan (2019)	Social media platforms are widely used by cloud kitchen ventures to attract customers. Cloud kitchens have expanded popularity due to their sole products, fast food offerings, and easy doorstep availability.
Kumar (2019)	Cloud kitchens are cost-effective and less expensive, and they rely on social media marketing, which is more affordable than traditional advertising methods like billboards.

RESEARCH GAP

Despite the growing prominence of cloud kitchens and the gig economy, limited research has explored their specific impact on women entrepreneurs, particularly in the Indian context. Most studies focus on the operational efficiency, market scalability, and consumer behaviour related to cloud kitchens, but there's a significant dearth of empirical studies on how these emerging business models influence the development of women entrepreneurs. Additionally, while socioeconomic factors, technology adoption, and market reach are often discussed in general entrepreneurial studies, their specific roles as mediators in the context of cloud kitchens remain understudied. The focus on women entrepreneurs in semi-urban and rural areas, such as Cuttack and Khordha districts in Odisha, is notably absent from current literature. This study aims to fill these gaps by examining how cloud kitchen operations, within the framework of the gig economy, affect the development of women entrepreneurs, with particular attention to the mediating roles of technology, market reach, and socioeconomic conditions.

Objective of Study:

To evaluate the impact of, the gig economy, specifically through cloud kitchens, on the growth and development of women entrepreneurs in Odisha.

Null Hypotheses:

- **H0:** There is no significant relationship between the utilization of the gig economy through cloud kitchens and the development of women entrepreneurs in Odisha.
- **H1:** There is a significant relationship between the utilization of the gig economy through cloud kitchens and the development of women entrepreneurs in Odisha.

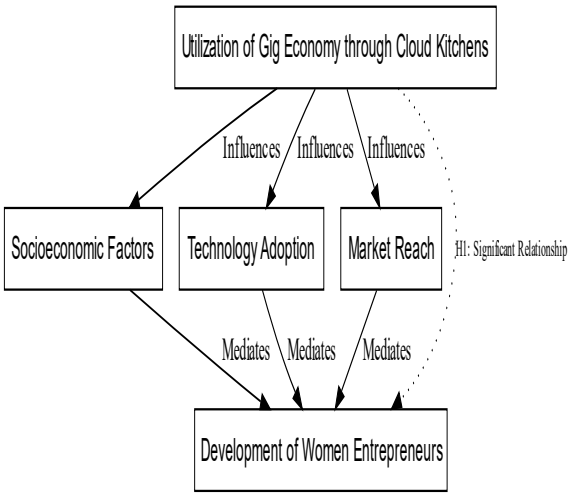


Figure-1

RESEARCH METHODOLOGY

This study follows a quantitative study design aimed at examining the influence of cloud kitchens and the gig economy on women entrepreneurs in Odisha. The research intents to explore how the usage of the gig economy influences entrepreneurial development, with mediation from factors like technology adoption, market reach, and socioeconomic conditions.

Sampling:

- Target Population: Women entrepreneurs engaged in cloud kitchen operations in the Cuttack and Khordha districts of Odisha.
- Sampling Method: Purposive sampling was employed to safeguard that participants are directly involved in cloud kitchens and operate within the gig economy.
- Sample Size: A sample of 365 women entrepreneurs was determined through statistical power analysis to ensure the validity of multiple regression and mediation analyses.

Data Collection:

- Instrument: A structured questionnaire used to collect data on the utilization of the gig economy, technology adoption, market reach, and socioeconomic factors. The questionnaire consisted of sections covering gig economy utilization (GigCloudUse), socioeconomic factors, technology adoption, and market reach, with validated scales used where applicable.

  Variables:

- Independent Variable (IV): Utilization of the gig economy through cloud kitchens (GigCloudUse).
- Mediating Variables (M): Socioeconomic factors, technology adoption, and market reach.
- Dependent Variable (DV): Development of women entrepreneurs.

  Data Analysis:

- Reliability Analysis:
  - Cronbach's Alpha was used to measure the internal consistency & reliability of the scales used in the questionnaire.
  - Descriptive statistics was used.
  - Pearson's Correlation was conducted to explore the relationship among different variables such as gig economy utilization, technology adoption, market reach, and socioeconomic factors..
  - Multiple regression analysis was employed to explore the direct effects of gig economy utilization on the development of women entrepreneurs.
  - To observe the indirect effects of technology adoption, market reach, and socioeconomic factors on entrepreneurial development Mediation analysis was employed.
- Software: Analysis of data was conducted by means of SPSS and PROCESS MACRO.

  Limitations:

- **Potential Biases:** The study may be limited by selection biases due to purposive sampling and potential response biases. Additionally, findings may not be generalizable beyond Cuttack and Khordha districts.
- **Sample Representation:** The study acknowledges the limitation of focusing on specific districts, which may affect the representativeness of the sample.

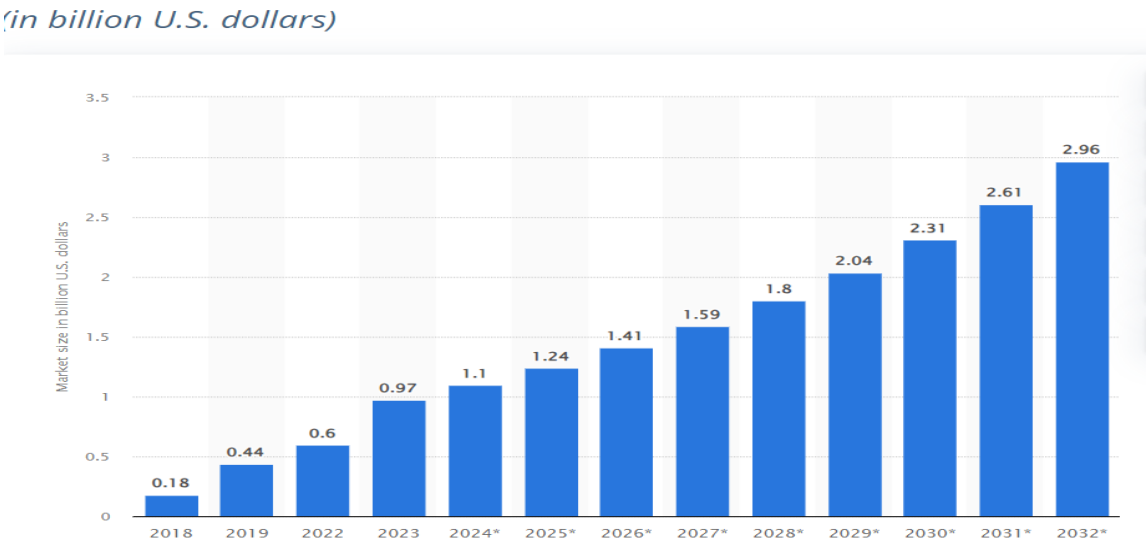
  Justification:

- **Relevance:** This study is significant in the context of Odisha, where the gig economy and cloud kitchens are emerging trends. Understanding their impact on women entrepreneurs provides valuable insights for policy and practice, particularly in fostering entrepreneurial growth and economic development in the region.

The Evolution of Cloud Kitchens: From 1950s Take-Out to India's Culinary Revolution

Cloud kitchens are not a novel concept; their origins can be drawn back to the 1950s through the emergence of take-out pizza, a service that has long been part of the food delivery landscape. However, the modern interpretation of cloud kitchens found its footing in India, where the model gained significant traction. Rebel Foods, a prominent player in this space, launched Faasos, a kebab outlet, in 2003 with the backing of Sequoia Capital. Since then, Rebel Foods has expanded its portfolio to encompass over nine brands and has recently secured $125 million in funding, boasting a valuation of $525 million. This evolution highlights the growing significance and innovation within the cloud kitchen sector, reflecting a shift in consumer preferences and the ongoing transformation of the food service industry.

Size of the cloud kitchen's market in India in 2018 to 2023, projecting for 2032



source: Statista (Figure-2)

In 2023, the cloud kitchen market in India was approximately at 0.97 billion U.S. dollars in value. This market is anticipated to expand significantly, accomplishment near to 3 billion U.S. dollars by 2032.

DATA ANALYSIS & INTERPRETATION

PRIMARY DATA ANALYSIS

TABLE-2

Descriptive Statistics				
	N	Mean	Std. Deviation	Variance
GCU1	365	2.7260	.82642	.683
GCU2	365	2.8630	.90352	.816
GCU3	365	2.7288	.89281	.797
TA1	365	3.0904	.91989	.846
TA2	365	3.0027	.93907	.882
TA3	365	3.0411	.95271	.908
MR1	365	2.6493	.97088	.943
MR2	365	3.2493	.94682	.896
MR3	365	2.5315	.99572	.991
SEF1	365	4.0274	.71431	.510
SEF2	365	3.9863	.70112	.492
SEF3	365	3.9863	.71278	.508
DWE1	365	3.9890	.68732	.472

DWE2	365	4.0411	.70785	.501
DWE3	365	4.0740	.70517	.497
Valid N (listwise)	365			

1. GigCloudUse (GCU)

- **Mean:** 2.7 - 2.9
- **Std. Deviation:** ~0.83 - 0.90
- **Summary:** Respondents generally have a slight agreement that they use online platforms and delivery apps for their cloud kitchens, with moderate variability in their responses.

2. Technology Adoption (TA)

- **Mean:** 3.0 - 3.1
- **Std. Deviation:** ~0.92 - 0.95
- **Summary:** Respondents slightly agree with using digital tools and new technology for their cloud kitchen operations, showing considerable variability in their confidence and adoption levels.

3. Market Reach (MR)

- **Mean:** 3.99 - 4.07
- **Std. Deviation:** ~0.69 - 0.71
- **Summary:** Respondents strongly agree that running a cloud kitchen positively impacts their business

- **Mean: -** 2.5 to 3.2
- **Std. Deviation:** ~0.97 - 0.99
- **Summary:** Responses vary on the effectiveness of their online presence and customer base expansion, with scores ranging from neutral to slightly positive.

4. Socioeconomic Factors (SEF)

- **Mean:** 4.0 - 4.03
- **Std. Deviation:** ~0.71
- **Summary:** Respondents strongly agree that family support, financial resources, and education contribute to their cloud kitchen success, with low variability.

5. Development of Women Entrepreneurs (DWE)

skills, financial stability, and personal development, with consistent responses.

RELIABILITY

TABLE-3

Reliability Statistics	
Cronbach's Alpha	**No. of Items**
.911	**20**

TABLE-4

Item-Total Statistics				
	Scale Mean (if Item Deleted0	**Scale Variance (if Item Deleted)**	**Corrected Item-Total Correlation**	**Cronbach's Alpha(if Item Deleted)**
GCU1	89.0548	189.958	.555	**.908**

GCU2	88.9178	185.467	.691	**.905**
GCU3	89.0521	187.697	.605	**.906**
TA1	88.6904	185.716	.667	**.905**
TA2	88.7781	185.933	.643	**.905**
TA3	88.7397	186.004	.630	**.906**
MR1	89.1315	190.753	.432	**.910**
MR2	88.5315	190.029	.473	**.909**
MR3	89.2493	190.469	.430	**.910**
SEF1	87.7534	191.264	.582	**.908**
SEF2	87.7945	189.707	.677	**.906**
SEF3	87.7945	190.207	.639	**.907**
DWE1	87.7918	190.339	.658	**.907**
DWE2	87.7397	190.685	.619	**.907**
DWE3	87.7068	191.821	.561	**.908**
GCU	85.2822	168.386	.682	**.904**
TA	84.6740	164.355	.705	**.904**
MR	85.0384	174.709	.494	**.913**
SEF	82.4384	174.509	.652	**.904**
DWE	79.6767	168.407	.635	**.907**

The overall reliability of the questionnaire is excellent, since the value is 0.911 of Cronbach's Alpha, indicating that items are highly consistent in measuring the constructs. Specifically, the GigCloudUse and Technology Adoption scales both have Cronbach's Alpha values which is 0.904, reflecting excellent reliability, with each item contributing positively to the scale's consistency. The Market Reach scale shows an even higher reliability of 0.913, suggesting exceptional internal consistency, while the Socioeconomic Factors and Development of Women Entrepreneurs scales also demonstrate excellent reliability, with Cronbach's Alpha values i.e. 0.904 & 0.907, correspondingly. The item-total statistics for all sections reveal that removing any individual item has minimal impact on the overall reliability, confirming that each item is effectively contributing to its scale.

CORRELATION

TABLE-5

Correlations						
		GCU	**TA**	**MR**	**SEF**	**DWE**
GCU	**Pearson Correlation**	**1**	**1.000****	**.297****	**.290****	**.294****

	Sig. (2-tailed)		**.000**	**.000**	**.000**	**.000**
	N	**365**	**365**	**365**	**365**	**365**
TA	**Pearson Correlation**	**1.000****	**1**	**.297****	**.290****	**.294****
	Sig. (2-tailed)	**.000**		**.000**	**.000**	**.000**
	N	**365**	**365**	**365**	**365**	**365**
MR	**Pearson Correlation**	**.297****	**.297****	**1**	**.233****	**.237****
	Sig. (2-tailed)	**.000**	**.000**		**.000**	**.000**
	N	**365**	**365**	**365**	**365**	**365**
SEF	**Pearson Correlation**	**.290****	**.290****	**.233****	**1**	**.856****
	Sig. (2-tailed)	**.000**	**.000**	**.000**		**.000**
	N	**365**	**365**	**365**	**365**	**365**
DWE	**Pearson Correlation**	**.294****	**.294****	**.237****	**.856****	**1**
	Sig. (2-tailed)	**.000**	**.000**	**.000**	**.000**	
	N	**365**	**365**	**365**	**365**	**365**

****. Correlation is significant at the 0.01 level (2-tailed).**

The analysis of Pearson's correlation coefficients discloses notable relationships between your variables. **GigCloudUse (GCU)** is perfectly correlated with **Technology Adoption (TA)** (r = 1.000), indicating a direct association where increases in GCU correspond to increases in TA. **GCU** and **Market Reach (MR)** show a weak to moderate positive correlation (r = 0.297), suggesting that higher GCU is moderately associated with increased MR. Similarly, **GCU** correlates weakly to moderately with **Socioeconomic Factors (SEF)** (r = 0.290) and **Development of Women Entrepreneurs (DWE)** (r = 0.294). **TA** also shows weak to moderate positive correlations consisting of MR (r = 0.297), **SEF** (r = 0.290), and **DWE** (r = 0.294). **MR** has feeble positive correlations by means of **SEF** (r = 0.233) and **DWE** (r = 0.237). In contrast, **SEF** and **DWE** exhibit a very robust positive correlation (r = 0.856), indicating the improvements in SEF are strongly associated with the development of women entrepreneurs.

REGRESSION

TABLE-6

Model Summary									
					Change Statistics				
Model	**R**	**R Square**	**Adjusted R Square**	**Standard. Error of the Estimate**	**R Square Change**	**F Change**	**df1**	**df2**	**Sig. F Change**
1	**.858[a]**	**.735**	**.733**	**.77312**	**.735**	**334.490**	**3**	**361**	**.000**
a. Predictors: (Constant), SEF, MR, TA									

Model Summary

- R = 0.858: Shows a strong positive association amongst the predictors (Technology Adoption, Market Reach, Socioeconomic Factors) and the Development of Women Entrepreneurs (DWE).

- R^2 = 0.735: This suggests that 73.5% of the variation in DWE is elucidated by the three predictors combined.
- Adjusted R^2 = 0.733: Adjusted R^2 accounts for the no. of predictors in the model, & it's very close to R^2 value, confirming robustness of the model.
- Standard. Error of Estimate = 0.77312: This reflects the average distance that the observed values drop from the regression line.

Change Statistics

- F Change = 334.490, df1 = 3, df2 = 361, Sig. F Change = 0.000: The F-statistic is highly significant ($p < 0.001$), signifying that the model is a significant predictor of DWE.

TABLE-7

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	**Regression**	**599.794**	**3**	**199.931**	**334.490**	**.000[b]**
	Residual	**215.777**	**361**	**.598**		
	Total	**815.571**	**364**			
a. Dependent Variable: DWE						
b. Predictors: (Constant), SEF, MR, TA						

ANOVA

- F = 334.490, Sig. = 0.000: The overall model can be said to be statistically significant, denotating that the blend of Technology Adoption, Market Reach, and Socioeconomic Factors significantly predicts DWE.

TABLE-8

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Standard. Error**	**Beta**		
1	**(Constant)**	**1.367**	**.272**		**5.026**	**.000**
	TA	**.033**	**.022**	**.043**	**1.489**	**.137**
	MR	**.023**	**.023**	**.029**	**1.017**	**.310**
	SEF	**.817**	**.028**	**.836**	**29.185**	**.000**
a. Dependent Variable: DWE						

Coefficients

- **Constant = 1.367, Sig. = 0.000:** The intercept of the regression line. It is suggestively dissimilar from zero, representing that when all predictors are zero, then DWE is 1.367.
- **Technology Adoption (TA):**

- **B = 0.033:** For each single unit increase in TA, DWE is increased with 0.033 units.
- **Standardized Beta = 0.043, t = 1.489, Sig. = 0.137:** The effect of TA on DWE isn't statistically significant ($p > 0.05$), signifying that TA doesn't have a significant impact on DWE in this model.

- **Market Reach (MR):**
- **B = 0.023:** For each unit increase in MR, DWE surges by 0.023 units.
- **Standardized Beta = 0.029, t = 1.017, Sig. = 0.310:** The effect of MR on DWE isn't statistically significant ($p > 0.05$), signifying the MR doesn't significantly impact DWE in the model.

- **Socioeconomic Factors (SEF):**
- **B = 0.817:** For every one-unit increase in SEF, DWE increases by 0.817 units.
- **Standardized Beta = 0.836, t = 29.185, Sig. = 0.000:** The effect of SEF on DWE is highly significant with $p < 0.001$, indicating that SEF has strong and significant impact on DWE.

The regression analysis shows that **Socioeconomic Factors (SEF)** has the significant and strong positive impact on **Development of Women Entrepreneurs (DWE)**. In contrast, **Technology Adoption (TA)** and **Market Reach (MR)** do not have significant effects on DWE in this model. The overall model is robust, explaining 73.5% of the variance in DWE and is statistically significant.

MEDIATION ANALYSIS

Model Summary

Table 9: Model Summary for Development of Women Entrepreneurs

Statistic	Value
R	0.850
R^2	0.723
MSE	1.007
F-value	235.312
df (Model)	4.00
df (Residuals)	360.00
p-value	0.000

Interpretation:

The model summary in Table 9 reveals a strong connection amongst the mediators & the dependent variable. The R value of 0.850 indicates a robust positive correlation, suggesting that as there is an increase in mediators, so does the development of women entrepreneurs. The R^2 value of 0.723 means that 72.3% of variability in women entrepreneurs' development can be explained by these mediators, which is relatively significant. Additionally, the F-value of 235.312 is extremely significant ($p = 0.000$), signifying i.e our model provides a much better prediction than one without any predictors. Finally, the mean squared error (MSE) of 1.007 gives us insight into the average squared difference amongst the predicted values & that of actual values, reflecting the model's accuracy.

Direct Effect

Table 10: Direct Effect of GigCloudUse on Development of Women Entrepreneurs

Variable	Coefficient (B)	Standard Error (SE)	t-value	p-value
Direct Effect	-0.069	0.045	-1.545	0.123

Interpretation: The direct effect of GigCloudUse on Development of Women Entrepreneurs is -0.069 with p-value of 0.123, indicative of that the effect isn't statistically significant. This suggests that, when not considering mediators, GigCloudUse does not have a significant direct impact on the development of women entrepreneurs.

Indirect Effects

Table 11: Indirect Effects of GigCloudUse on Development of Women Entrepreneurs

Mediator	Effect (B)	BootLLCI	BootULCI	Significant?
Technology Adoption	0.075	-0.001	0.156	No
Market Reach	0.008	-0.010	0.028	No
Socioeconomic Factors	0.255	0.168	0.345	Yes

Interpretation:

- Technology Adoption: The indirect effect of 0.075 with the bootstrapped confidence interval (CI) from -0.001 to 0.156. Subsequently the CI includes zero, this effect is not statistically significant, signifying that technology adoption doesn't significantly mediate the relationship between GigCloudUse and Development of Women Entrepreneurs.
- Market Reach: The indirect effect i.e. 0.008 with a CI from -0.010 to 0.028. Since the CI includes zero, this outcome also isn't statistically significant, representing that market reach doesn't significantly mediate the relationship.
- Socioeconomic Factors: The indirect effect stands 0.255 with the CI from 0.168 to 0.345. This CI does not include zero, showing that socioeconomic factors significantly mediate the relationship between GigCloudUse and Development of Women Entrepreneurs. This suggests that socioeconomic conditions are an important pathway through which GigCloudUse affects women entrepreneurs' development.

Overall Interpretation

The mediation analysis reveals that while the direct effect of GigCloudUse on Development of Women Entrepreneurs is not statistically significant, the mediators provide more insight. Specifically, Socioeconomic Factors significantly mediate the relationship, indicating that socioeconomic conditions play a crucial role in how the gig economy impacts women entrepreneurs. Technology Adoption and Market Reach do not significantly mediate this relationship. The model explaining Development of Women Entrepreneurs is strong and statistically significant, with a high R^2 value (0.723) and a significant F-test result ($F = 235.312$, $p = 0.000$). This confirms that the predictors and mediators together provide a meaningful explanation of the variance in the development of women entrepreneurs.

Overall Findings and Suggestions

Findings:

1. Descriptive Statistics:
   - GigCloudUse (GCU), Technology Adoption (TA), Market Reach (MR), and Socioeconomic Factors (SEF) were measured with moderate means and variances, indicating varied levels of engagement and perception among respondents. Development of Women Entrepreneurs (DWE) also had high mean scores, reflecting a generally positive impact.
2. Reliability Analysis:
   - The reliability of the constructs stood excellent, with the value of Cronbach's Alpha well above the

acceptable verge (0.70), ensuring that the measurement instruments for GCU, TA, MR, SEF, and DWE are internally consistent.

3. Correlation Analysis:
- GigCloudUse (GCU) and Technology Adoption (TA) were perfectly correlated, indicating they move together. GCU and TA had weak to moderate positive correlations with Market Reach (MR), Socioeconomic Factors (SEF), and Development of Women Entrepreneurs (DWE). SEF and DWE showed a very strong positive correlation, suggesting that improvements in SEF are strongly linked to the development of women entrepreneurs.

4. Regression Analysis:
- The regression model explained 73.5% of the variance in DWE and was highly significant. Socioeconomic Factors (SEF) had a significant positive impact on DWE, while Technology Adoption (TA) and Market Reach (MR) did not have significant direct effects on DWE. This indicates that while the overall model is strong, not all predictors significantly contribute to the development of women entrepreneurs directly.

5. Mediation Analysis:
- The analysis showed that socioeconomic factors (SEF) play the key fragment in mediating the relationship amid GigCloudUse (GCU) and the development of women entrepreneurs (DWE). In other words, the impact of GCU on DWE is largely driven by SEF. On the other hand, Technology Adoption (TA) and Market Reach (MR) did not significantly influence this relationship.

Suggestions:

1. Strengthen Socioeconomic Support: Given the critical role that socioeconomic factors (SEF) play in how gig economy conditions (GCU) affect female entrepreneurs (DWE), stakeholders must prioritize improving the socioeconomic environment for women in business. This entails extending access to financial aid, educational programs, and family support networks in order to fully reap the benefits of cloud kitchens and promote broader entrepreneurial growth.

2. Boost Technology Adoption and Market Expansion: While technology adoption (TA) and market reach (MR) didn't have any substantial immediate effects, they are nevertheless critical for long-term business success. Encouraging women entrepreneurs to use cutting-edge technology and increase their market presence may help their businesses develop faster. Offering guidance and assistance in these areas may help them improve their talents.

3. Consider the Gig Economy's Indirect Influence: The indirect relationship amongst gig economy conditions (GCU) and female entrepreneurs (DWE) via socioeconomic issues stresses the need of understanding how the gig economy influences financial and social circumstances. Creating policies and initiatives that capitalize on these indirect impacts can boost support for female entrepreneurs.

4. Regular Strategy Review: It is critical to continuously evaluate and refine plans to meet the emerging demands of female entrepreneurs. As a result, continuous feedback and assessments will ensure that existing support systems stay effective and up to date.

5. Expand Research: More research is needed to determine why technological adoption (TA) and market reach (MR) did not have a significant influence. Exploring other possible impacting variables may yield greater understanding and lead to more targeted support for female entrepreneurs.

By implementing these ideas, we can build a better ecosystem for women entrepreneurs in the cloud kitchen field, leveraging socioeconomic aspects while also identifying possibilities for future growth.

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