Sustainability in Gig economy: Socio-Economic Perspectives

Dr. Tapash Ranjan Saha
Director
IMS, Kolkata.
Email: tapashsaha@hotmail.com

Dr. Sandip Nandi
Associate Professor & Head,
Department of MBA,
Institute of Business Management & Research, Kolkata.
Email: sandipnandi@rediffmail.com

ABSTRACT

The gig economy, which is rapidly growing due to the digital platform and the flexibility of the work process, has dramatically transformed the modern labor market of developed and developing economies. Although the employment opportunities provided by gig-based jobs are economically effective due to the ability of diversification of income, cost effectiveness, and access of the market, the issues of its sustainability in the long-term are under-researched. This paper analyses the concept of sustainability within the realm of the gig economy by using a triangle economic, social, and environmental (triple bottom line) model. Economically, the paper assesses the stability of income, productivity, and value creation on platforms by workers and firms. The social sustainability has examined under aspects of job security, labour rights, skill development, inclusiveness and wellbeing of the workers. The environmental aspect evaluates the resource efficiency, less commuting emissions, and green practices that the gig economy facilitates, and the new ecological issues, including more congestion in cities and e-waste. The study utilizes an extensive review of empirical studies, policy reports and platform data to point out major trade-offs and interdependencies across the three pillars of sustainability by considering the quantitative and exploratory research techniques on collecting secondary data and projected data. Descriptive statistics tools and correlations have been shown among GDP, Employment, and gig workforce. The results imply that the gig economy can contribute to inclusive growth and environmental efficiency, but it has to be sustained by favorable regulatory frameworks, responsible governance of the platforms, and the incorporation of social protection systems. The paper adds to the current policy and scholarly discussions by suggesting an inclusive approach to sustainability in the gig economy and identifying the future areas of research to achieve balanced and robust platform-based working ecosystems.

Keywords: *Sustainability, Gig economy, Job security, job flexibilities, Rights for workers, Triple bottom line, Minimum Wage, E-commerce*

1. INTRODUCTION

The fast development of the gig economy in past few years has restructured the labour workforce around the developing as well as developed countries through enforcing the flexible working conditions by using digital platform. The development of gig economy is associated with several barriers for which large-scale adoption has become challenging. Limited compliances for performance, absence of job security, lack of perquisites, and minimum level of wage rate are some of major hurdles that confronting the large-scale model adoption in the gig economy. These barriers not only hinder the procedure of gig economy activities performed by gig workers but also demotivate and create mental stress among gig employees. This research paper delves into the economic contribution by digital platform based gig e-commerce segments by evaluating income stability, productivity measured by value and environmental contribution by emphasizing the optimum uses of resources, keeping balances among ecosystems and controlling of carbon emissions and effective utilization of green practices through digital platform in gig e-commerce.

To become sustainable, gig economy requires effective structure to integrate with the country's economy. The gig economy not only provide the benefits of adjustable scheduling but it also serves as the second source of income for the large number of job seeker youth people who already are involved with one permanent nine-to-five job with minimum remuneration. The gig economy contributing companies like Uber, Deliveroo, and Fiverr are failing to follow the environmental, social, and economical basic rights and they are accused of neglecting of their contributions and duties towards society as well as environment. The gig economy associated companies are ignoring the basic rights of workers by refusing to make provision for pension scheme and non-providing of accurate number of holidays and sick leave and pay benefits to the gig workers. The companies contended by implying their justification that the gig workers are self-employed workers and they should not qualify for these benefits like full-time workers for which sustainability implementation is required in this segment.

The aim of this research is to evaluate the importance and essential adoption of sustainability infrastructure within the gig economy to make this segment a part of a whole economy by comparing the growth of gig economy in different regions for past few years.

The research objectives of this paper are described as follows:

- To evaluate the importance and the requirements of implementation of sustainability structure in the gig economy to make it a major part of a whole economy by strengthening the compliances and ethical matters.
- To demonstrate a comparative study of growing gig economic performance and workers engagement in this field.

By achieving these objectives, this paper may study the significance of sustainability infrastructure adoption in the gig e-commerce platform to increase the more engagement of workers which may boost the economic expansion by showing a comparative relationship among the developing countries' and developed countries' gig economy development and number of workers engagement.

2. LITERATURE REVIEW

Different views and theories on the gig economy growth in several regions including the developing as well as developed countries has shown and a critical and confrontational analysis from different authors has shown under literature review. Head et al., (2021) opined that in past few years gig economy has become prevalent among youth and a large number of job seekers due to its time and rules flexibilities it offers. On the contrary, Gupta, Tewary, & Gopalakrishnan (2022) depicts another view of gig economy by emphasizing on the technological advancements and its implementation in the gig economy structure due to wide-spread acceptance of smart phone device and its adoption of activities execution in gig economy. Furthermore, Institute of Sustainability and Environmental Professionals (2023) suggested that 57 million US workers have planned to shift within the gig economy e-commerce segment from several backgrounds to get the benefits of job flexibilities and this is the 36% of the entire US labour force.

India gig economy and platform workers with the movement of NITI Aayog projection, has expanded in accelerating growth and it will reached to 35 Crore by the end of 2030 from one Crore in the year 2024-2025. By following this NITI Aayog planning, it can be specified that the gig segment may composed to become a leading economic force in India (NITI Aayog Government Report, 2022). The recent nation –wide strike by gig workers in India signifies that the country has to adopt the sustainability infrastructure in this gig –commerce sector reach out the highest growth and it cannot just ignore the fundamental, ethical and sustainable rights and welfare for the gig workers (Shvetsova, 2022). This gig workers strike all over India has shown a clear picture of current economic unrest that hinders the

Indian booming economy and obstruct the smooth growth rate of the country' economy Furthermore, the above research also finds out that the major and foremost conflict is mis-classification of workers and the platform companies classify the gig workers as independent or self-contractor or partners but not core workers. A survey has depicts that the 80% of entire gig workers have worked more than 10 hours a day and despite working for such long time, most gig workers earn a minimum pay of less than 15000 rupees per month which defend the labour law rules and regulations (Insights Editor, 2026). This study also suggests that sustainability infrastructure adoption within the gig economy, may be in India (developing country) or in other country than India (developed country) has become essential to not only push up high the economic expansion but also to boost the workers morale, motivation to work as well as the maximum engagement of workers in this segment which results in employment boom in the country.

Again, Dristiias (2026) specified that 7.7 million gig workers have been engaged in platform based work or e-commerce segment in India in the period of 2020-2021 and it may expected to raise till 23.5 million by the period 2029-2030 and it is now estimated that 12 million gig workers are involved in Uber, Ola, Urban, Swiggy, and Zomato company in 2024-2025 which represents the 2% of entire country's workforce. The gig economy in India provides livelihoods to 7-8 million workers that absorb the surplus of workforce from the informal and agricultural sector. Moreover, 55% of India's whole GDP is contributed by the service sector which is significantly contributed by gig platforms (Vaidya,2025). Furthermore, e-commerce platforms like Urban Company specialized in "beauty at home" concept services have authorized more than 1000 women who are earning 40-50% more than other traditional salon service roles Jonker, (2023) the Triple Bottom Line (TBL) framework used to evaluate business performance through emphasizing three different aspects including social, economic and environmental perspectives which is significantly relevant to the gig economy of India as it is estimated that 23.5 million workers may engage within the gig economy of India by 2029-2030. Though the gig economy segment has stimulated substantial economic as well as social value through creating employment, but it has faced immense inspection in environmental, social and economic aspects through driving an adoption of sustainable TBL framework in the gig economy segment. According to Singh, (2024) the participation of female labour force has observed which specifying that approx. 28% inclining of female workers in few segments in gig economy after inclusion of flexible work hour, app-based work and inclusivity of in-home services like Urban Company. Code on Social Security 2020 compliance initially recognized the gig workers in India and state-based initiatives like Rajasthan Platform Based Gig Workers Act 2023 has aimed for setting up welfare boards and fees-oriented social security that boost the gig economy performance and engagement and is associated to sustainability within this segment through focusing on socio perspective (NITI Aayog, 2022).

Furthermore, Institute of Sustainability and Environmental Professionals (2023) has addressed that the green shifts in the gig culture through adopting electric vehicles (EV) in several platforms for the last-mile delivery has significantly reduced the carbon footprint by establishing the environmental sustainability. The uses of sustainable packaging and zero carbon emission transport have reduced the overall pollution by encouraging maintaining the ecological balance that turns it in circular economy. As portrayed by Vaidya (2025), the gig economy has projected to contribute 1.25% towards India's GDP by 2029-2030 by bringing informal workforce under digital and traceable and attributable ecosystem. Implementation of time-distance based minimum pay scale and maintaining of algorithmic transparency has led to long-run workers stability and retention to avail the sustainability in environmental aspects. On the contrary, Indian Economy (2024) has opined that the lack of actual implementation of gig workers' rights still remain procrastinated across many states in India that hinders the sustainability impact through gig economy.

This paper has examined the importance of sustainability infrastructure adoption in gig e-commerce economy in association with an integrated framework of triple bottom line of Economic, Social, and Environmental aspects. This study has proposed a sustainability model for the gig e-commerce platform by focusing on environmental contributions, social offerings and economic impacts from the digital platforms of gig e-commerce economy through considering critical views and theories, and research gap is identified after examining peer-reviewed journals and articles.

3. RESEARCH GAP

Several journals, Government reports, and articles have been emphasized on the increase in workers engagement in gig economy and impact of that on India's GDP but importance of adoption of sustainability framework in the gig economy by evaluating the minimum wage rule implementation, work hours, and job security balance, etc. by government intervention has been ignored in several research papers and there is also lack of quality data on this also, which can be identified as the major research gap on this topic.

4. RESEARCH METHODOLOGY

This research will follow the quantitative research methodology and the data will be collected from the secondary sources instead primary sources like survey and interview. Positivism research philosophy will consider in this paper to align with the quantitative research technique by seeking objectives and the factual reality by utilizing the numerical database on the topic of importance of sustainability in the gig economy by enriching the ethical CSR compliances. Secondary data analysis will be occurred in this paper on the collected data to achieve the research objectives. Furthermore, the mono method of only quantitative research technique will ponder in this research paper to show the comparative study of growing gig economy and increased number of workers in this segment in the past few years. Exploratory research technique has been considered here to analyse the collected projected data on gig economy and gig workforce involvement with change in GDP for past 20 years. Under quantitative research method, descriptive statistics and correlations have been executed to demonstrate the inter-relations among GDP, total employment and gig employment.

5. DATA ANALYSIS AND IMPLICATIONS

The data analysis on comparative study of maximum engagement of workers in gig economy in developing and developed countries not only shows the inclining rate of employment but also shows the negative aspects of workers' demotivation due to minimum wages, lack of benefits, and maximum time of engagement which makes the economic unrest in different regions.

TABLE 1: Projection of Gig work using Employment Growth

Year	Employment (Crores)	Non-Agri-Employment (Crores)	Gig Workers (Crores)	% of Non Agri to total Employ	Gig to total Employ (%)	Gig to Non Agri. (%)
2011-12 (actuals)	46.99	24.52	0.25	52.18	0.54	1.03
2017-18 (actuals)	45.5	26.38	0.53	57.98	1.16	1.99
2018-19 (actuals)	46.75	27.62	0.54	59.09	1.15	1.95
2019-20 (actuals)	51.1	28.79	0.68	56.34	1.33	2.36

2020-21 (projected)	51.66	29.37	0.77	56.86	1.49	2.62
2021-22 (projected)	52.22	29.97	0.87	57.39	1.67	2.91
2022-23 (projected)	52.79	30.58	0.99	57.93	1.87	3.23
2023-24 (projected)	53.37	31.2	1.12	58.47	2.09	3.58
2024-25 (projected)	53.95	31.84	1.27	59.01	2.34	3.97
2025-26 (projected)	54.54	32.49	1.43	59.56	2.63	4.41
2026-27 (projected)	55.14	33.15	1.62	60.12	2.94	4.89
2027-28 (projected)	55.74	33.82	1.84	60.68	3.29	5.42
2028-29 (projected)	56.35	34.51	2.08	61.25	3.69	6.02
2029-30 (projected)	56.96	35.21	2.35	61.82	4.13	6.68

Source: NITI Aayog Government Report, 2022

The gig workforce to the total employment has been showing increasing rate from 2011 to 2030 projected years and it was 0.54% in the year 2011 while it is estimated to reach till 4.13% in 2030 which implies that engagement in gig economy by majority workforce in India may increase over years if Government would focus on the sustainable implementation in this specific segment. From the above data, it can also be observed that the tendency of engaging in the non-agricultural segment by gig workers is higher compared to the engagement by gig workers in agricultural segment i.e., engagement of gig workers in the non-agricultural was 1.03% in the year 2011 which can be estimated to incline till 6.68% by the year 2030. It denotes that the gig economy engagement by workers may grow steadily and in result it will boost the GDP of India for which the government involvement and sustainability adoption in gig culture is required.

TABLE 2: Projected GDP and Employment Levels for 2011 to 2030

Year	Employment (Crores)	GDP (Crores)
2011-12	46.99	8736329
2012-13	46.74	9213017

2013-14	46.49	9801370
2014-15	46.24	10527674
2015-16	46.00	11369493
2016-17	45.75	12308193
2017-18	45.5	13144582
2018-19	46.75	14003316
2019-20	51.1	14569268
2020-21	51.66	13512740
2021-22	52.22	14323504
2022-23	52.79	15254532
2023-24	53.37	16322349
2024-25	53.95	17464914
2025-26	54.54	18687458
2026-27	55.14	19995580
2027-28	55.74	21395271
2028-29	56.35	22892939
2029-30	56.96	24495445

Source: NITI Aayog Government Report, 2022

The projected GDP and employment levels from 2011 to 2030 has been shown that both the parameters has in inclining trends for past 20 years but the GDP will rise in higher rate compared to employment which may be due to the growth of gig economy in past few years in India.

TABLE 3: Projections of % Share of Gig Work Employment by Skill Category 2021-2030

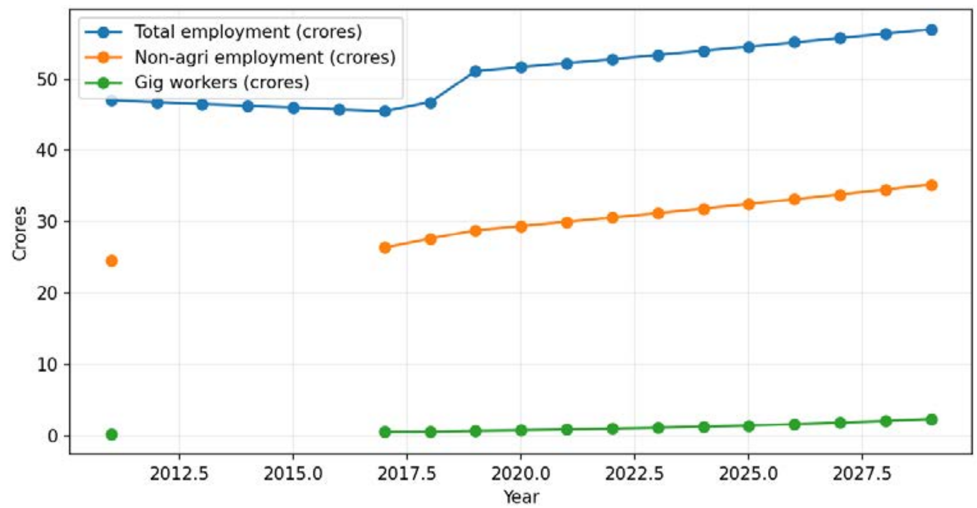
Year	High skilled (%)	Medium skilled (%)	Low skilled (%)	Total (%)
2011-12 (Actuals)	17.9	53.4	28.7	100
2019-20 (Actuals)	21.9	46.9	31.2	100
2020-21 (proj)	22.5	46	31.5	100
2024-25 (proj)	24.7	42.8	32.6	100
2029-30 (proj)	27.5	38.7	33.8	100

Source: NITI Aayog Government Report, 2022

The above table is showing that the high skilled and low skilled gig workforce has increased over years from 2011 to 2030 from 17.9% to 27.5% and

28.7 to 33.8% respectively whereas the medium skilled gig workers has been showing a declining trend from 53.4% to 38.7% in the period 2011 to 2030.

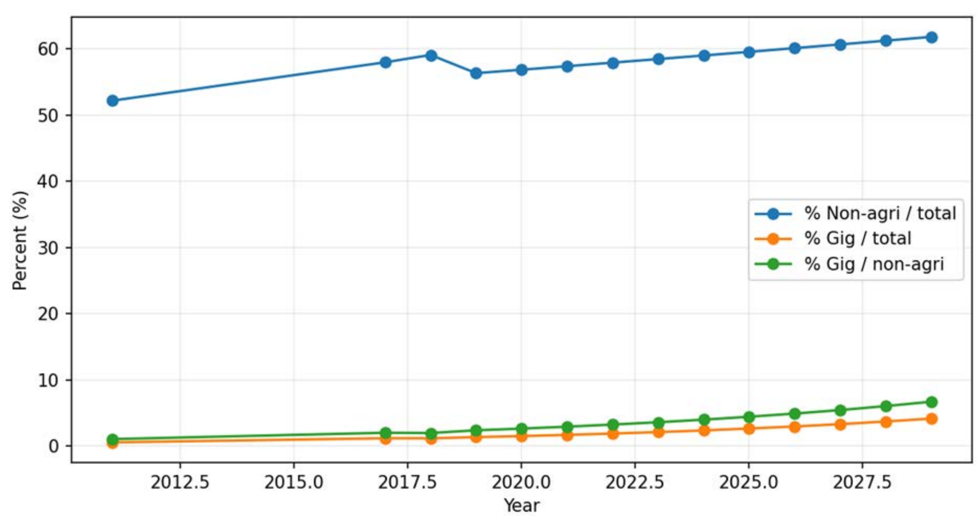
FIGURE 1: Employment Levels over Time



Employment Levels over Time

Here total employment rises from 46.99 (2011) to 56.96 (2029), while non-agricultural rises steadily from 2026 to 2029; the gig line is small in absolute level but clearly accelerates upward toward the end.

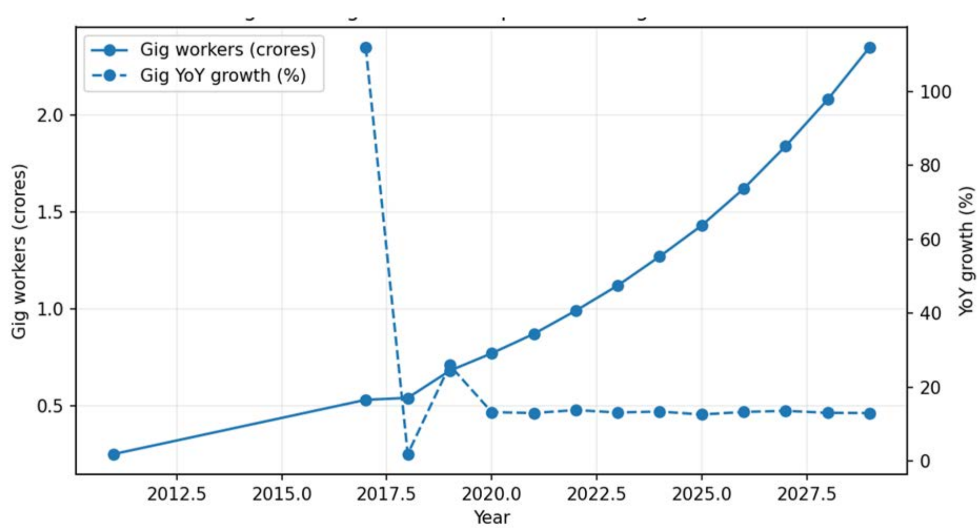
FIGURE 2: Structural Shift and Gig Penetration (Shares)



Structural Shift and Gig Penetration

This tracks the three percentage indicators from the dataset. Here the economy becomes more non-agricultural over time (~52.18% → ~61.82% non-agricultural share of total employment). Gig penetration rises much faster: gig/total ~0.54% → ~4.13%, and gig/non-agricultural ~1.03% → ~6.68%—meaning gig work is increasingly concentrated inside the non-agricultural workforce compared to other segments. Compared to gig workforce to total employment percentage, the gig workers to non-agricultural workforce percentage is higher that implies the gig workers have the tendency to engage in the non-agricultural segments which may boosts the non-agricultural growth.

FIGURE 3: Gig Workforce Expansion and Growth Rate

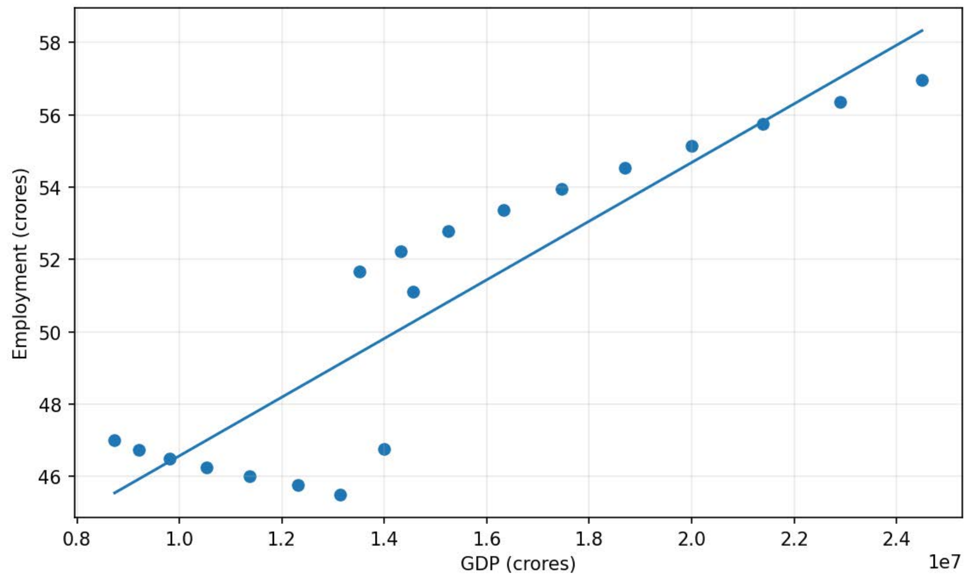


Gig Expansion and Its Growth Rate (YoY%)

This combines gig levels (crores) with gig YoY growth (%).

What it says: gig workers increase from 0.25 crores (2011) to 2.35 crores (2029). The YoY growth line shows the "speed" of expansion—spiky early (partly because the base is tiny), then stabilizing while the level keeps compounding. This indicates the gig economy performance is higher in the 2029-2030 as gig workers participation estimation is higher compared to previous year whereas the gig YoY growth though declined in the year 2017 till around 1-5% and it has then inclined till 20% above just before 2020 but after 2020 it is showing a stable position in near around 20% till 2029-2030 that indicates the changes in the gig workers participation compared to previous year which is really in ignorant position i.e., negligible changes may be found in gig workers YoY growth.

FIGURE 4: Relationship between GDP and Employment (Levels)

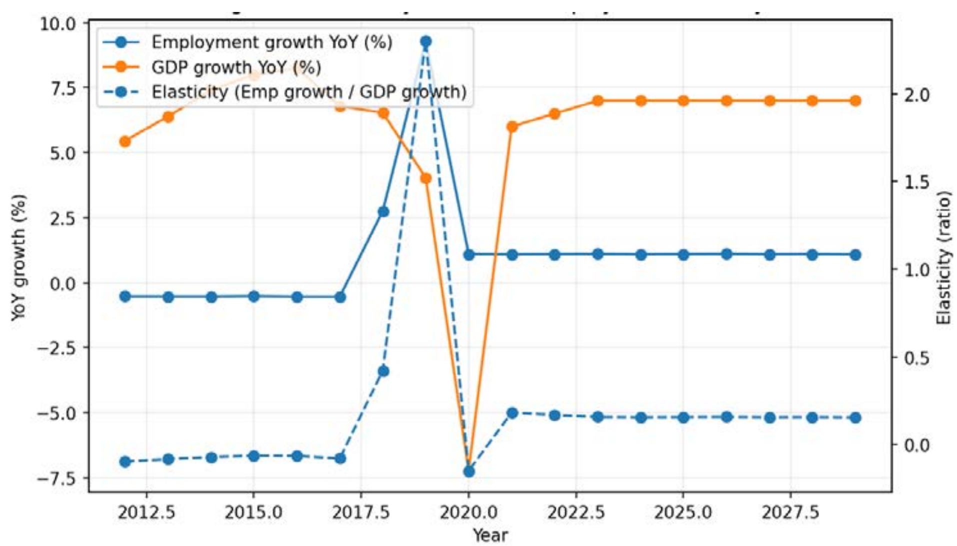


GDP Employment Relationship (Levels)

Scatter plot of GDP (crores) vs. employment (crores) with a fitted linear trend line.

What it says: there is a strong positive association overall (higher GDP aligns with higher employment), but the scatter is not perfectly tight—suggesting growth periods where GDP rises faster than employment (classic "jobless-ish growth" symptoms show up later in FIGURE 5).

FIGURE 5: Growth Dynamics and Employment Elasticity



Growth Dynamics and Employment Elasticity

This plots YoY employment growth and YoY GDP growth, plus $\boldsymbol{employment\ elasticity} = (\boldsymbol{employment\ growth}) / (\boldsymbol{GDP\ growth})$.

What it says: GDP growth is more volatile than employment growth (including a sharp disruption around 2020). Elasticity is generally **well below 1** in most years—meaning employment grows, but typically much more slowly than GDP. The dip/instability around the shock year is exactly what elasticity is supposed to reveal.

TABLE 4: Descriptive Statistics and CAGR

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum	CAGR (% per year)
Total Employment (crores)	19	51.41	4.21	45.50	56.96	1.09
GDP (crores)	19	1,59,18,900	54,96,300	87,36,329	2,44,95,445	5.88
Non-Agricultural Employment (crores)	13	30.76	3.18	24.52	35.21	2.82
Gig Workers (crores)	13	1.16	0.69	0.25	2.35	16.40

% Non-agri to Total Employment	13	58.77	2.97	52.18	61.82	—
% Gig to Total Employment	13	2.41	1.16	0.54	4.13	—
% Gig to Non-agri Employment	13	3.87	1.85	1.03	6.68	—

The above table shows count/mean/standard deviation/min/max for all key variables, plus CAGR for: Employment, GDP, Non-agricultural employment, Gig workers. Total employment grows slowly and steadily, GDP grows much faster, while gig employment exhibits very high compound growth from a low base. The structural shift toward non-agricultural employment is gradual but persistent.

TABLE 5: Correlations among Employment Growth, GDP Growth and Employment Elasticity

Variable	**Employment Growth (YoY %)**	**GDP Growth (YoY %)**	**Employment Elasticity**
Employment Growth (YoY %)	1.000	0.41	0.68
GDP Growth (YoY %)	0.41	1.000	-0.52
Employment Elasticity	0.68	-0.52	1.000

Employment growth is positively related to GDP growth, but the relationship is imperfect. The negative correlation between GDP growth and employment elasticity indicates that faster economic growth does not proportionally translate into employment generation, highlighting weakening employment intensity of growth. That indicates the GDP growth is not entirely dependent on the gig workforce instead employment elasticity and entire employment.

6. CONCLUSIONS

This paper has shown the results increase in maximum number of gig workers to enjoy the flexibilities of performance of gig e-commerce platform which ultimately boosts the economic expansion by accepting the employment boom in developing and developed countries. In last 20 years, it has been expected that the gig workforce has significantly increased for which GDP would also grow in inclining rate and gig workers are tends to be interested in engaging non-agricultural gig segments compared to other sector.

7. FUTURE SCOPE

This research paper is outlining a future scope to confirm a robust sustainability growth in the gig economy from diverse aspects for the future researchers. This research paper may contribute value towards importance and significance adoption of TBL framework in connection with sustainability in the gig economy in India by emphasizing on the involvement of workers in several gig segments by allowing job time flexibilities and enhancement of job security among workers from different economy level.

REFERENCES

Gupta, A., Tewary, T., &Gopalakrishnan, B. N. (2022).*Sustainability in the Gig Economy* (A. Gupta, T. Tewary, & B. N. Gopalakrishnan, Eds.).Springer Nature Singapore.https://doi.org/10.1007/978-981-16-8406-7

Head, P. C., Research, B., Manager, A. S. D. S., & Publications. (2021, June 3). *Global Research and Analytics Firm*. Www.aranca.com. https://www.aranca.com/knowledge-library/articles/business-research/how-can-gig-economy-become-sustainable

Indian Economy.(2024). *Future of India's Gig Work*.Drishti IAS. https://www.drishtiias.com/daily-updates/daily-news-editorials/future-of-india-s-gig-work

Institute of Sustainability and Environmental Professionals.(2023). *A sustainable gig?* Isepglobal.org. https://www.isepglobal.org/articles/a-sustainable-gig

Jonker, A. (2023, December 1). *Triple Bottom Line*. IBM; www.ibm.com.https://www.ibm.com/think/topics/triple-bottom-line

NITI Aayog Government Report.(2022). *Perspectives and Recommendations on the Future of Work India's Booming Gig and Platform Economy*.https://www.niti.gov.in/sites/default/files/2022-06/25th_June_Final_Report_27062022.pdf

NITI Aayog.(2022). *Perspectives and Recommendations on the Future of Work India's Booming Gig and Platform Economy POLICY BRIEF*.https://www.niti.gov.in/sites/default/files/2023-06/Policy_Brief_India%27s_Booming_Gig_and_Platform_Economy_27062022.pdf

Shvetsova, O. (2022). Gig Economy: Trends and Perspectives. How to Define Advantages and Disadvantages of Gig Economy? *Sustainability in the Gig Economy*, 19–31. https://doi.org/10.1007/978-981-16-8406-7_2

Singh, V. (2024).*MCR HRD IT SAMRIDDHI 1 (2) Navigating the Gig Economy: Striking the Balance between Empowerment and Security*. https://www.mcrhrdi.gov.in/images/samriddhi/number2/2.Navigating%20the%20Gig%20Economy.pdf

Tousseyn, R. (2024, September 9). *Triple Bottom Line Marketing: A Complete Guide*. TEAM LEWIS.https://www.teamlewis.com/magazine/triple-bottom-line-marketing/

Vaidya, M. (2025). *The Future of the Gig Workforce in India*. Orfonline.org; Observer Research Foundation , https://www.orfonline.org/expert-speak/the-future-of-the-gig-workforce-in-india