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# HRC

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## **ABOUT THE COLLEGE**

Hansraj College is one of the largest constituent colleges of the University of Delhi. The college was founded by the D.A.V. College Managing Committee on 26th July, 1948 in the sacred memories of Maharshi Dayanand Saraswati and Mahatma Hansraj who spent their magnificent lives emphasizing the importance of knowledge. It is one of the leading lights in the D.A.V. family of over 700 institutions.

Hansraj College is a premier institution dedicated to teaching and research. It has highly qualified academicians who impart education in Science, Commerce, and Arts at undergraduate and graduate levels to more than 5000 students. The college has consistently demonstrated outstanding performance in academics, sports, and extracurricular activities.

The college has completed 76 years in the realm of imparting higher education. It has made significant and unparalleled contributions in terms of producing scholars, bureaucrats, intellectuals, and sportsperson serving in different domains not only in our own country but even at international levels.

Hansraj College stands at the cusp between the past and the future today. While it retains inspiring facets of its proud history, with an equally sharp gaze it looks ahead, assimilating the exciting world of new knowledge as it unfolds in front of it, holding the promise of an experience seeped with exhilarating learning and holistic growth for all those who enter its portals.

## **About the Journal**

The *HRC Journal of Economics and Finance* is a **double-blind peer-reviewed academic journal** for students, researchers, and faculty to showcase their research pertaining to the discipline of economics and business. It is an international journal. Our mission is to provide a platform through which scholars can publish their scholarly findings to showcase them with the research community at large. We invite research papers and articles on topics related to the field of economics, business and management for its quarterly journal publication.

## **Message from the Principal**

The launch of the *HRC Journal of Economics and Finance* is a milestone that marks our dedication towards providing a platform to young researchers in the field of economics and finance. It is even more fortuitous that the launch has been manifested in the Platinum jubilee year of the college, the Centenary year of the University of Delhi and the 75<sup>th</sup> year of India's independence.

The New Education Policy, 2020 has launched a paradigm shift that encourages research both at the faculty and student level. Accordingly there is a growing need to provide credible platforms to present research outputs at all levels. This journal fills a significant gap and will contribute to fostering a research ecosystem thereby advancing the objectives of the NEP 2020. This journal will provide an opportunity to students, teachers and scholars, around the world to come together and showcase the links between classroom teaching and their practical training.

I congratulate the authors whose papers/articles have been published in the journal and encourage others to contribute to future issues. Appreciation is due to the Editor In-Chief of this journal, Dr. Apoorva Gupta who has worked tirelessly for the successful launch of this issue of the journal. My best wishes for the success of this venture.

Prof. (Dr.) Rama  
Principal  
Hansraj College

## **From the Editor's Desk**

Dear Readers,

It is my great pleasure and privilege to present the third issue of the second volume of the Journal of Hansraj College, the *HRC Journal of Economics and Finance*. The journal provides a platform to young researchers in the field of economics, business, social sciences, finance and management to publish their scholarly articles. Our inclusive nature ensures that we cover the wide range of issues in the field. This issue features a diverse range of articles that provide insightful analyses and innovative perspectives on various contemporary economic topics.

We have received around thirty papers relevant to the field of development economics, political economy, macroeconomic policy, financial markets, international trade, and behavioral economics. All the papers went through three rounds of review process, first by the editors and then by the review board. All the papers have gone through double blind peer review process. The authors were communicated with the revisions. The papers were accepted only after the satisfactory revisions were being made. We strictly follow the research ethics and do not tolerate plagiarism. All the selected papers were tested for plagiarism before publication. We have worked tirelessly to bring out the fourth issue of the journal with high quality research work.

Writing quality research papers takes a lot of time and effort, and the authors must be congratulated for writing their research papers for the journal, which is launched in the Platinum Jubilee year of the college, the Centenary year of the University of Delhi and the 75<sup>th</sup> year of India's independence. We also take this opportunity to congratulate the review board of this issue for their constant academic support for the timely release of the journal. We also thank the support received from the Principal of the college, Prof. (Dr.) Rama, the Advisory Board and the Editorial Board.

We hope that readers find the articles interesting, informative and engaging, and enjoy reading it. We believe that this effort of ours will stimulate further research and discussion in the field of economics and finance, and encourage readers to write for further issues of the journal. We look forward to receiving your feedback and suggestions for future issues.

**Disclaimer:** The opinions expressed in this journal belong to the contributors and do not necessarily reflect the viewpoints of the college, the editors, the Advisory Board, the Editorial Board, and the Review Board of the *HRC Journal of Economics and Finance*.

**Dr. Apoorva Gupta**

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## **Status of Women in North East India: Comparing Gender-based Development Parameters**

**Ira Das<sup>1</sup>, Associate Professor, Post Graduate Department of Economics, Pragjyotish College, Gauhati University, Gauhati, Assam**

### **Abstract**

*Development of a society needs development of men and women together. There is a perception that women's status in North East India is relatively better than that of other states of India. The fulfilment of "the Practical Gender Needs" (for example, prerequisite of employment, health care, education etc.) along with "the Strategic Gender Needs" (for example, equal wage, decision making, power and control over self finance, and protection from domestic violence etc.) are very important for appraisal of gender equality and over all women's status. Therefore, closer scrutiny of women's status in prevailing social, economic and cultural structure of North East India in present context is very important. The present study aims to examine women's status in North East India in comparison to other states of India in some selected gender-based development parameters. From the analysis it can be inferred that the status of women is better in the North East India than any other states of India regarding the gender-based development parameters like education, labour force participation, wages, participation in decision making, participation in management, physical, emotional, and sexual violence done by their husbands. However, women's status in the region is found below national average regarding health parameters, crime against women and participation in parliamentary process.*

**Key words:** Status, Strategic gender needs, Practical gender needs, Equity, Parameters

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## **1. Introduction**

Women represent about fifty per cent of society's population and therefore development of any society needs development of both men and women. However, women have been accorded a lower status than men in all over the world till now despite the progresses being made in recent years.

In the viewpoint of United Nations, "Gender equality does not mean that women and men will become the same, but women's and men's rights, responsibilities and opportunities should not depend on whether they are as a born female or a male" (UNDP & BRIDGE, 2007). According to António Guterres, UN Secretary-General "Bridging the gender divide is not only a matter of justice for women and girls; it is a game changer for humanity. Societies with more equal representation are more stable and peaceful. They have better health systems and more vibrant economies" (European Investment Bank, 2022). The status of women in a society depicts the social, economic and mental condition of that society which is reflected ultimately in nation building of a country. Therefore, women's status is a topic of concern for many years and it is an important issue of the debate too.

In India, Government has taken several initiatives and implemented several programs and policies for improvement of women's health, education, and women empowerment. In India, women's labour force participation has increased and women are capable to acquire high positions in diverse fields of academics, administration, politics, entertainments etc. However, there is still a lot to be done to make assured full gender parity in the country as India's position in Global Gender Gap Index 2021 rankings, is 140 out of 156 countries, according to the Report of Gender Gap (World Economic Forum, 2021). "This gap is 4.2 percentage points wider than recorded in the previous edition, which explains why India has fallen 28 places in the ranking. Most of the decline has occurred on the Political Empowerment sub-index, where India has regressed 13.5 percentage points to reach a level of gap closed to date of just 27.6 per cent" (World Economic Forum, 2021). "Women are the worst sufferer in developing countries, coping with climate-related stresses, since they are often the ones in charge of providing food, energy and water" (WHO, 2011). There exists digital gender divide too (GSMA, 2022). According to the Report to estimate Mobile Gender Gap, women are having 18 per cent less smart phones than men (GSMA, 2022).



Whatever progress was made in education, health and labour force participation, the COVID-19 crisis has slowed down the progress. Women have suffered asymmetrical job losses and their work time for unpaid work has increased. According to International Labour Organisation, between 2019 and 2020, women's employment declined "by 4.2 per cent in 2020 compared to 3 per cent for men, and 90 per cent of women who lost their jobs in 2020 exited the labour force entirely" (ILO, 2021).

North Eastern Region (NER) comprises of seven sister states, namely, Arunachal Pradesh, Assam, Mizoram, Manipur, Meghalaya, Tripura, Nagaland, and Sikkim. The NER comprises 3.78 percent of country's populace covering 7.9 per cent of India's total geographical area (Government of India, 2024). Despite relatively poor economic growth of the region, it is widely known as comparatively a progressive region regarding status of women. There exists an opinion that women's status is comparatively better in NER when it is compared with other states of India (Das, 2013; Bordoloi & Bedmata, 2022). The entire NER of India is dowry free. The North East India is having both matrilineal and patriarchal societies. The Khasis & Garos of Meghalaya of NER are following a matrilineal system. The girls marry the grooms who after marriage have to shift to the bride's houses and the girls enjoy ancestral properties rights. In matrilineal society, women get the opportunity to voice themselves in public and women are a part of local governments and decision-making. "Although workforce participation is regarded as one of the main parameters to empower the women in the society, high female employment rate may satisfy "Practical Gender Needs"(e.g. provision of employment, healthcare, education etc.) along with the "Strategic Gender Needs" (e.g. equal wage, decision making, power and control over self finance, and protection from domestic violence etc)" (Das, 2013). "The decision on what to cook, about their own healthcare, and staying with their parents/siblings, the extent of mobility and women's ability to make these choices to go to the market or visit friends/relatives without seeking permission are also important for gender equality" (Das, 2013). Therefore, closer scrutiny of women's status in prevailing social, cultural and economic structure of NER in present context is very important. Generally, biased inheritance rights, prevalence of crimes conducted for women, and increasing violence related case for women, all challenges women's status. Whether present status of women in NER is at par with the all India average or not, the

present study tries to explore this. Whether the NER states are doing well in terms of standard women/ gender-specific development parameters, it is an issue of grave concern.

A few gender gap studies have been found in the context of the North East India (Mahanta & Nayak, 2013; Das, 2013; Borah, 2019; Choudhuri & Kumar, 2021; Bordoloi & Bedmata, 2022, etc.). However, the analysis of women's status in North Eastern Region of India for gender-based development parameters in the recently published "Periodic Labour Force Survey (PLFS) 2022-23" data and "National Family Health Survey (NFHS) 2019-21", "Women and Men in India Report 2020", is a less touched topic among the researchers so far. The present study expects to fill up this research gap.

The objective of the gender based development parameters is to create a definite set of facts that can be beneficially used to identify and intervene to improve status of women. Therefore, this study aims to examine women's status in the states of NER and to make comparison with other states of India in some selected gender-based development parameters.

This research paper has been organized in four sections including this introduction. The second section illustrates the sources of data and methodology used for the study. The third section depicts the result analysis and discussion while the final section draws the conclusion of the research paper.

## **2. Sources of Data and Methodology of the Study**

Mainly secondary data were used in the present study which is collected from the latest published reports of PLFS (2022-23) and NFHS (2019-21), and "Women and Men in India (2020)".

Different organizations use different parameters to measure gender disparity or inequality to know women's status. "The World Economic Forum's Gender Gap Index (GGI) uses a broad range of dimensions and indicators like economic participation, economic opportunity, political empowerment, educational attainment, health and wellbeing and others" (Lopez-Claros & Zahidi, 2005). According to FAO (2005), the parameters of gender equality are Women's rights component, Social component, Economic component and Political component. Some other parameters taken by others are life expectancy and

literacy, sex ratios and marriage and fertility (Chacko, 2003). According to the Report to estimate the Global Gap prepared by “World Economic Forum” (2017) & World Economic Forum (2021), “the indicators to measure the gender gaps are participation and opportunity, educational attainment, health and survival and political empowerment”. “The gender-related indicators include data relating to economic and social equality and political equality, according to World Bank” (Eastin & Prakash, 2013).

The following gender based development parameters are selected from literature to examine the status of women of NER in comparison with that of the national average:

- (i) Female Literacy and Gender Gap (FLG),
- (ii) Female Labour Participation Rate (FLPR),
- (iii) Women Experienced Emotional, Physical and Sexual violence (WEPSV),
- (iv) Crimes Against Women (CAW),
- (v) Women Participation in Senior level and Middle level Management” (WPM),
- (vi) Women’s Participation in Parliament (WPP),
- (vii) Average Wage Earnings of Women (AWW),
- (viii) Control over cash earnings of Women and Men (CCE),
- (ix) Female’s Participation in decision making process (WDP), and
- (x) Health and Gender gap (GPH).

Here, FLG, FLPR, WPP, AWW, CCE, WDP and GPH are positive parameters and WEPSV and CAW are negative parameters of gender-based development. In case of the positive parameters, higher is the value, higher is the status of women while opposite is true for the negative gender-based development parameters i.e. higher is the percentage value lower is the status of women. Gender gaps are calculated using simple mathematical tools like subtracting values of females from that of males and performance rankings are determined from the values of positive and negative parameters.

### 3. Analysis and Discussion

#### 3.1. Female Literacy and Gender Gap (FLG)

“Developing countries like India always have to face wide gender gap in literacy rates due to some disparities like gender imbalances, income imbalances, religious imbalances, caste imbalances and technological barriers prevailing in the society. Female illiteracy may stimulate population, employment, national income and overall the economic growths of the developing country like India” (Pal & Chattopadhyaya, 2018). Therefore, this study aims to examine the gender gap in literacy rates in NER by comparing that of other states of India.

Table 1: Comparison of literacy rates (in per cent) (7 & above age group) of persons of different age groups of NER with that of the rest of India, 2022-23

State	Rural					Urban				
	Female Literacy (Rural)	Rank in Female Literacy (Rural)	Male Literacy (Rural)	Gender Gap (Rural)	Rank in Gender Literacy Gap (Rural)	Female Literacy (Urban)	Rank in Female Literacy (Urban)	Male Literacy (Urban)	Gender Gap (urban)	Rank in Gender Literacy Gap (Urban)
<b>States of NER</b>										
Arunachal Pradesh	78.9	8	86.6	7.7	11	87.2	11	94.9	7.7	7
Assam	75.7	11	77.8	2.1	17	91.6	9	97.1	5.5	12
Manipur	85.7	8	93.3	7.6	12	90.9	9	96.2	5.3	13
Meghalaya	93.8	3	95.3	1.5	18	96.2	5	99.1	2.9	16
Mizoram	98.7	2	99.5	0.8	19	99.9	1	99.8	-0.1	20
Sikkim	80.7	10	89.1	8.4	12	93.6	7	97.3	3.7	14
Tripura	90.1	7	94.9	4.8	14	94.8	6	98.2	3.4	14
<b>Rest of India</b>										
Kerala	91.4	5	95.5	4.1	16	96.3	4	97.8	1.5	18
Lakshadweep	100	1	100	0	20	96.5	3	98.8	2.3	17
A & N Islands	88.6	8	93.7	5.1	16	93.2	8	96.3	3.1	16
Goa	91.1	6	97.6	6.5	13	92.1	8	98.9	6.8	10
Maharashtra	76.2	13	89.5	13.3	8	88.4	10	95.8	7.4	8
Uttarakhand	78.4	9	91.7	13.3	8	84.6	14	93	8.4	6
Gujarat	72.7	11	89.2	16.5	3	87.2	11	93.8	6.6	11
Odisha	71.7	12	83.7	12	9	85.1	13	92.4	7.3	9
Chhattisgarh	69	14	83	14	7	81.1	17	91.7	10.6	4
Madhya Pradesh	62.9	18	81.5	18.6	1	82.2	13	92.9	10.7	3
Andhra Pradesh	60.5	19	74.9	14.4	6	76.4	20	88	11.6	2
Uttar Pradesh	66.8	16	83.1	16.3	4	77.5	19	88.8	11.3	5
Jammu & Kashmir	68.8	15	85	16.2	5	88.4	10	89.5	1.1	19
Jharkhand	70.3	13	84.7	14.4	6	96.2	5	92.8	-3.4	21
Bihar	64.8	17	82	17.2	2	78.7	18	90.4	11.7	1
Tamil Nadu	78	10	87.5	9.5	10	86.7	12	94	7.3	9
<b>All India</b>	<b>70.3</b>	<b>13</b>	<b>83.6</b>	<b>13.3</b>	<b>8</b>	<b>84.6</b>	<b>14</b>	<b>93</b>	<b>8.4</b>	<b>6</b>

Source: Gender gaps are calculated and rankings are done on the basis of PLFS-2022-23 data

Table 1 illustrates the women literacy and the gender literacy gap in the states of NER in comparison with the other states of the country. It is apparent from the ranking of the states that literacy rates are higher in NER than other states of India for both the rural and urban areas and the ranking of all the NER states is above the national average. Mizoram performed remarkably very well as it occupies the second highest position in rural female literacy and the highest urban literacy among the states in India. Regarding gender gap in the rates of literacy the performance of the NER states are far above the country average in both rural and urban areas. This is in line with the result derived before 10 years i.e. in 2013 (Das, 2013). The reason may be that the main focus of the states of NER is literacy and the governments of NER states are trying to invest heavily on education. Various schemes are launched by the governments to improve the quality and excellence of education in these states.

### 3.2. Labour Force Participation Rates of Females (FLPR)

One of the commonly seen indicators of women's progress towards equality with men is the higher levels of labour-force participation among women. Table 2 illustrates the labour force participation rates of females in NER states in comparison with the other states of India.

Table 2: Comparison of Female Labour Force Participation Rates of Females (FLPR) (in per cent) of the states of NER (in usual status)<sup>#</sup> of age 15 years and above, with the rest of India

States	Rural FLPR (%)	Ranking (R)	Urban FLPR (%)	Ranking (U)
<b>States of NER</b>				
Arunachal Pradesh	62.7	6	37.4	7
Assam	19.8	35	29	15
Manipur	30.2	29	34.2	10
Meghalaya	66	5	40.3	6
Mizoram	48	20	42.1	4
Nagaland	71.1	3	50.2	1
Sikkim	76.5	1	34.4	8
Tripura	36.9	26	27.8	18

<b>Rest of India</b>				
Himachal	74.8	2	40.7	5
Andaman & N. Island	52.5	13	45.9	2
Ladakh	60.5	7	44.8	3
Chhattisgarh	66.4	4	34.4	9
Rajasthan	55.8	8	23.6	28
D&N Haveli & Daman & Diu	55.6	9	26	24
Jammu & Kashmir	55.1	10	27.4	21
Kerala	40.8	25	33.6	11
Gujarat	54.5	12	26.4	23
Karnataka	42.5	23	30.3	13
Jharkhand	52.4	14	16.8	33
Madhya Pradesh	52.3	15	21.8	29
Andhra Pradesh	51.8	16	32.3	12
Maharashtra	50.2	17	27.6	20
Puducherry	49.4	18	24.8	27
Tamil Nadu	49.3	19	28.8	16
Telegana	54.8	11	27.6	19
Odisha	47.5	21	27.8	17
Uttarakhand	45.7	22	16.8	34
Lakshadweep	11.3	36	19	32
West Bengal	36.5	27	27.4	22
Punjab	28.8	31	25.5	25
Bihar	23.3	33	12.6	37
West Bengal	36.5	27	27.4	22
Uttar Pradesh	35.5	28	14.1	36
Goa	26.3	32	29.4	14
Chandigarh	29.3	30	21	30
Haryana	21.1	34	19.9	31
Delhi	3.9	37	15.1	35
Delhi	3.9	37	15.1	35
<b>All India</b>	<b>41.5</b>	<b>24</b>	<b>25.4</b>	<b>26</b>

Source: Rankings are done on the basis of PLFS 2022-23 data. #Usual status (US) includes both Principal activity status (PS) and Subsidiary status (SS). Principal activity status (PS) comprises the persons who worked or searching for work for 365 days. Subsidiary status (SS) includes those persons who worked for 30 days or more in addition to her/his usual principal status.

It is evident from Table 2 that out of eight NER states, the ranking of the five NER states namely Sikkim, Nagaland, Meghalaya, Arunachal Pradesh, and Mizoram is considerably above the country average in rural India. Similarly, in urban areas also, the ranking of all the NER states is above country average in labour force participation rates of females. Therefore, it can be inferred that the gender disparities is lower in NER states regarding labour force participation rates. Higher FLPR in NER may be explained partly by the evidence that “the community-based organisation of subsistence production requires a

high level of female workforce participation” (Unnevehr & Stanford, 1985). Another factor linked with higher labour force participation levels may be higher level of educational attainment by the states of NER as analysed in Table 1. Researchers “have linked higher participation of women with rice cultivation” (Unnevehr & Stanford, 1985; Rasheed et al., 2020). All the NER states have agriculture based economy and rice is their staple food. Therefore, the high FLPR may be due to this reason.

### **3.3. “Status of Women who Experienced Emotional, Physical and Sexual Violence” (WEPSV)**

As per data captured by the NFHS-5 (2019-21) incidence of violence, “about one-third of the women in the country are facing violence from their husband”. According to the NFHS-5 (2019-21) report, the married women (of 18-49 years) who have “experienced emotional, physical or sexual violence committed by their husband in India has slightly decreased from 33.3 per cent in 2015-16 to 32 per cent in 2019-21 but it is still very high”.

Table 3 illustrates the % of married women of age 18-49 who have ever went through sexual, physical and emotional violence conducted by their husbands. It is revealed from the table that the violence committed by their husbands is highest in Karnataka and lowest in Lakshadweep. The violence is below the country average in all the NER states except Manipur and Assam as this is the negative gender based development parameter. Higher is the percentage value lower is the status of women. Here the fact needs to be remembered that the women generally do not open their mouth against their husbands in shyness to the society and in fear of breaking up their relationships. However, those women who are educated and societies are liberal they can openly speak up their conditions. Otherwise the majority of the women generally hide their truth.

Table 3: Comparison of the percentage of married women (18-49 years) in NER who have “experienced emotional, physical or sexual violence committed by their husbands” with that of other states of India

States	2019-20	Ranking
<b>States of NER</b>		
Arunachal Pradesh	26.6	16
Assam	34.3	7
Manipur	41.6	3
Meghalaya	21.1	21
Mizoram	11.9	31
Nagaland	11	33
Sikkim	21.3	20
Tripura	23.2	19
<b>Rest of India</b>		
Andaman & N. Island	18.3	24
Andhra Pradesh	33.4	8
Bihar	42.5	2
Chandigarh	11.8	32
Chhattisgarh	21	22
D&N Haveli & Daman & Diu	17.7	26
Delhi	25.8	18
Goa	9.7	35
Gujarat	16.1	27
Haryana	20.6	23
Himachal	10.7	34
Jammu & Kashmir	12.8	30
Jharkhand	32.8	9
Karnataka	48.4	1
Kerala	12.9	31
Ladakh	27.7	15
Lakshadweep	1.3	36
Madhya Pradesh	31	12
Maharashtra	28.2	14
Odisha	32.4	10
Puducherry	31	12
Punjab	13.4	28
Rajasthan	26.3	17
Tamil Nadu	39.7	5
Telegana	40.4	4
Uttar Prdeash	37.3	6
Uttarakhand	17.8	25
West Bengal	29.7	13
<b>All India</b>	<b>31.9</b>	<b>11</b>

Source: Rankings are done on the basis of NFHS-5 (2019-21) data



### **3.4. Status of the Crimes Against Women (CAW)**

Table 4 depicts the reality that except Mizoram and Nagaland the rate of occurrence of various crimes against women is higher in NER states than the country average. This is a negative gender-based parameter as lower the percentage value implying more favorable for the society. It is a matter of serious concern that Assam, a major state of NER occupied the worst position regarding various crimes committed against women among the states of India.

### **3.5. Participation of Women in Management (WPM)**

It is revealed from Table 5 that “the percentage of female workers in usual status (ps+ss) working in senior level and middle level management positions” are higher in NER than the country average except Assam, Nagaland and Tripura. It is a remarkable success for the NER that the first, second, third and fourth positions are occupied by the North Eastern states in this regard.

### **3.6. Participation of Women in Parliament (WPP)**

It is revealed from Table 6 that except Meghalaya and Tripura, the participation of women in NER is below the country average.

### **3.7. Average Wage Earnings of Women (AWW)**

The important fact revealed from Table 7 is that the rural gender gap in average wages (per day) from casual labour work other than public works in Current Weekly Status is slightly above the national gap in Assam, Meghalaya and except Tripura. The urban gender gap in wages earnings has come out much higher in Sikkim whereas the rural gender gap has shown negative in Tripura in the report. The data are not available for Nagaland, Mizoram and Manipur regarding this parameter. However, there is less urban wage gap in all the NER states except a marginally high wage gap for Meghalaya.

Table 4: Comparison of “state-wise rate (per lakh women) of incidence of various crimes against women” in NER with other states of India

States	2022	Ranking
<b>States of NER</b>		
Assam	21.8	1
Meghalaya	19.98	3
Sikkim	17.86	5
Tripura	16.85	7
Arunachal Pradesh	12.04	13
Manipur	9.43	16
Mizoram	5.51	30
Nagaland	3.65	32
<b>Rest of India</b>		
Andaman & N. Island	12.69	11
Andhra Pradesh	7.99	21
Bihar	6.36	29
Chandigarh	11.45	14
Chhattisgarh	6.64	27
D&N Haveli & Daman & Diu	17.1	6
Delhi	4.66	31
Goa	7.49	23
Gujarat	1	36
Haryana	8.07	20
Himachal	8.49	19
Jammu & Kashmir	12.43	12
Jharkhand	13.35	9
Karnataka	8.84	18
Kerala	2.58	34
Ladakh	-	
Lakshadweep	7.03	25
Madhya Pradesh	6.45	28
Maharashtra	7.31	24
Odisha	20.17	2
Puducherry	3.33	33
Punjab	7.69	22
Rajasthan	14.32	8
Tamil Nadu	1.12	35
Telegana	13.14	10
Uttar Pradesh	9.22	17
Uttarakhand	9.84	15
West Bengal	19.74	4
<b>All India</b>	<b>7.03</b>	<b>25</b>

Source: Rankings are calculated from the “Report of Crime in India, National Crime Records Bureau, Ministry of Home Affairs & Women and Men in India 2022”

Table 5: Comparison of “the percentage of female workers in usual status working in senior level and middle level management positions” in NER with other states of India

States	2021	Ranking
<b>States of NER</b>		
Arunachal Pradesh	22.9	8
Assam	13.9	22
Manipur	31.1	3
Meghalaya	30.9	4
Mizoram	41.5	1
Nagaland	8.3	28
Rajasthan	10.1	26
Sikkim	32.5	2
Tripura	17.7	17
<b>Rest of India</b>		
Andaman & N. Island	7.2	31
Andhra Pradesh	30.3	5
Bihar	7.3	30
Chandigarh	15.2	19
Chhattisgarh	12.8	23
D&N Haveli & Daman & Diu	1.8	34
Delhi	22	10
Goa	22	10
Gujarat	19.1	13
Haryana	12.1	25
Himachal	12.7	24
Jammu & Kashmir	4.6	32
Jharkhand	14.2	21
Karnataka	26.5	6
Kerala	21.7	11
Ladakh	-	-
Lakshadweep	-	-
Madhya Pradesh	18.8	14
Maharashtra	16	18
Odisha	19.5	12
Puducherry	26.1	7
Punjab	7.7	29
Rajasthan	10.1	26
Tamil Nadu	22.2	9
Telegnana	17.8	16
Uttar Pradesh	9.8	27
Uttarakhand	3.4	33
West Bengal	14.6	20
<b>All India</b>	<b>18.1</b>	<b>15</b>

Source: Rankings are calculated from the “Annual Bulletin on Additional Indicators, Periodic Labour Force Survey, July 2019-20 & 2020-21, National Statistical Office, Ministry of Statistics & Programme Implementation”

Table 6: Comparison of the women participated in 17th Lok Sabha, 2019 (percent of total seats) in NER with that of the rest of India

States	2019	Ranking
<b>States of NER</b>		
Meghalaya	50	2
Tripura	50	2
Arunachal Pradesh	10	13
Assam	7	15
Manipur	0	17
Mizoram	0	17
Nagaland	0	17
Sikkim	0	17
<b>Rest of India</b>		
Andaman & N. Island	0	
Andhra Pradesh	16	9
Bihar	8	14
Chandigarh	100	1
Chhattisgarh	27	4
Delhi	14	11
Gujarat	23	6
D&N Haveli & Daman & Diu	0	17
Goa	0	17
Haryana	10	13
Himachal	0	17
Ladakh	0	17
Maharashtra	17	8
Jammu & Kashmir	0	17
Karnataka	7	15
Jharkhand	14	11
Lakshadweep	0	17
Madhya Pradesh	14	11
Odisha	33	3
Puducherry	0	17
Punjab	15	10
Rajasthan	12	12
Tamil Nadu	8	14
Telegana	6	16
Uttar Pradesh	14	11
Uttarakhand	20	7
West Bengal	26	5
<b>All India</b>	<b>14</b>	<b>11</b>

Source: Rankings are calculated from the NFHS-5 (2019-21) data

Table 7: Comparison of “average wage earnings (in Rs.) per day from casual labour work other than public works” in CWS<sup>#</sup> for NER with that of other states/UTs of India

States	Rural		Urban		Rural	Urban
	Male	Female	Male	Female	Gender Gap	Gender Gap
<b>States of NER</b>						
Arunachal Pradesh	524.3	501.19	487.2	400	23.11	87.2
Assam	431.68	242.45	496.54	325.37	189.23	171.17
Manipur	591.1	0	531.93	500	-	31.93
Meghalaya	476.66	324.55	453.85	269.85	152.11	184
Mizoram	465.37	0	483.74	488.02	-	-4.28
Nagaland	439.51	0	462.72	487.87	-	-25.15
Sikkim	596.3	0	604.24	44.15	-	560.09
Tripura	456	646.74	490.45	381.53	-190.74	108.92
<b>Rest of India</b>						
Andaman & N. Island	616.03	465.12	680.48	0	150.91	-
Andhra Pradesh	599.41	339.66	592.63	357.79	259.75	234.84
Bihar	392.16	330.4	428.04	339.11	61.76	88.93
Chandigarh	450	400	494.99	433.95	50	61.04
Chhattisgarh	275.96	202.01	311.4	232.34	73.95	79.06
D&N Haveli and Daman & Diu	310	244	390	0	65.6	-
Delhi	600	0	558.28	600	-	<b>-41.72</b>
Goa	765.35	0	820.55	487.11	-	333.44
Gujarat	359.69	283.69	424.78	228.54	76	196.24
Haryana	511.29	345.49	501.68	339.85	165.8	161.83
Himachal	488.88	406.97	512.43	400	81.91	112.43
Jammu & Kashmir	515.98	0	540.27	474.22	-	66.05
Jharkhand	394.05	374.69	417.18	385.1	19.36	32.08
Karnataka	453.84	267.88	545.93	322.56	185.96	223.37
Kerala	845.63	418.86	903.26	493.54	426.77	409.72
Ladakh	574.62	0	800	0	-	-
Lakshadweep	768.82	0	795.27	400	-	395.27
Madhya Pradesh	337	261.43	366.87	248.84	75.57	118.03
Maharashtra	364.77	245	495.08	274.87	119.77	220.21
Odisha	364.82	303.53	399.84	330.51	61.29	69.33
Puducherry	508.36	198.33	634.15	507.8	310.03	126.35
Punjab	416.39	337.83	430.2	301.74	78.56	128.46
Rajasthan	431.25	367.27	461.78	274.59	63.98	187.19
Tamil Nadu	600.05	291.52	648.67	382.73	308.53	265.94
Telegana	569.89	395.56	631.72	445.51	174.33	186.21
Uttar Pradesh	384.79	251.09	415.88	315.75	133.7	100.13
Uttarakhand	476.27	600	487.87	500	-123.73	-12.13
West Bengal	368.61	234.82	409.13	317.83	133.79	91.3
<b>India</b>	<b>416.14</b>	<b>286.66</b>	<b>515.34</b>	<b>332.85</b>	<b>129.48</b>	<b>182.49</b>

Source: Gender gaps are calculated from PLFS-2022-23. Note: Zero (0) Cell value means there is no sample observation. <sup>#</sup>Current weekly status (CWS) implies those persons who work or who want to work for at least one hour.

### **3.8. Control over cash earnings of Women and Men (CCE)**

Table 8 illustrates gender gap in the process of decision making in families. The control of cash earnings by women and men over their income and amount of women's earnings are shown in the table which shows that “the gender gap in decision making process” is highest in one of the NER states i.e. Tripura (19.8) followed by Mizoram (16.2) and Nagaland (6.9.) In other NER states like Assam, and Meghalaya, the gender gap is below national average while the gap is even zero and negative in Arunachal Pradesh, and Sikkim.

### **3.9. Women’s participation in Decision Making Process (WDP)**

Table 9 shows the % of married women (15-49 years) who can generally take three decisions by “themselves or jointly with their husbands” during 2019-21. In this regard, it is a remarkable achievement of all NER states that all states performed very good showing the active participation of women in “decision making process in the family”. This table holds the opinion that women’s status is comparatively better in the states of NER than other states of India (Das, 2013; Bordoloi & Bedamatta, 2022).

### **3.10. Gender gap related to Health (GPH)**

Table 10 illustrates maternal care indicators for births to mothers (age 15-49). In case of % of women who have received all kinds of antenatal care, the condition of NER states is very dismal. Except Manipur, Mizoram, and Sikkim, the status of NER states is below national average. Similarly, regarding the indicator of % of deliveries having postnatal health checkup for the mother, the condition is even worse as all the NER states performed far below the national average.

Table 8: Comparison of women's and men's control over income in NER with other states of India (2019-21)

States	“Percentage of married women who can alone or jointly with their husband decide how their own earnings are used”	“Percentage of married women who can alone or jointly with their husband decide how their husband's earnings are used”	“Percentage of married men who can alone or jointly with their husband decide how their wife's earnings are used”	“Percentage of married men who can alone or jointly with their husband decide how their own earnings are used”	Gender Gap
<b>States of NER</b>					
Tripura	91.5	76.4	85.6	56.6	19.8
Sikkim	90.5	77.7	72.8	82.3	-4.6
Nagaland	97.4	93.9	95.5	87	6.9
Mizoram	95.4	89.6	90.2	73.4	16.2
Meghalaya	89.3	80.6	67.2	77.7	2.9
Manipur	84.4	80.6	93.1	80.6	0
Assam	87.5	77.7	78.5	77.6	0.1
Arunachal Pradesh	83.1	73.4	67.8	82.7	-9.3
<b>Rest of India</b>					
Andaman & N. Island	100	82.4	61.6	63.3	19.1
Andhra Pradesh	78.5	70.9	90.7	79.1	-8.2
Bihar	91.3	79.5	72.1	75.7	3.8
Chandigarh	85.1	92.5	90.4	94.1	-1.6
Chhattisgarh	88.9	83.3	84.1	79.8	3.5
D&N Haveli and Daman & Diu	76.6	82	58.8	83.3	-1.1
Delhi	95.3	79.8	72.3	72.2	7.6
Goa	99	79.8	41.9	53.8	26
Gujarat	90.5	81.2	83.9	73.1	8.1
Haryana	87.8	76.3	77.1	83.6	-7.3
Himachal	93.3	77	57.1	76.9	0.1
Jammu & Kashmir	70.5	67.9	82.6	66	1.9
Jharkhand	88.1	82.7	79.2	85.1	-2.4
Karnataka	73.9	68.2	84.6	52.8	15.4
Kerala	91	68.2	84.6	52.8	15.4
Ladakh	68.2	68.8	91.9	75	-6.2
Lakshadweep	100	80	65.9	37	43
Madhya Pradesh	85	74.3	86.5	76.5	-2.2
Maharashtra	85.1	74.1	71	73.1	1
Odisha	91.6	81	77.8	72.2	8.8
Puducherry	93.9	82.6	89.9	80.4	2.2
Punjab	91.1	84.5	84	84.9	-0.4
Rajasthan	80.1	70.6	81	69	1.6
Tamil Nadu	87.1	78.3	76.6	83.2	-4.9
Telegana	75.2	68.7	76.6	83.2	-14.5
Uttar Pradesh	85.6	75.2	76.5	76.6	-1.4
Uttarakhand	92.7	78.8	83.2	87.4	-8.6
West Bengal	89.1	72.2	64.3	66.6	5.6
<b>India</b>	<b>85.1</b>	<b>75.4</b>	<b>77.6</b>	<b>71.8</b>	<b>3.6</b>

Source: Gender gaps are calculated from NFHS-5 (2019-21), Vol. I

Table 9: Comparison of “participation of women in decision making” in NER with other states of India

States	“Percentage of women who can usually make decision alone or jointly with their husband”				
	Own health care	Making major household purchases	“Visit to their family or relatives”	“All three decisions”	“None of the three decisions”
<b>States of NER</b>					
Arunachal Pradesh	82.1	81.7	82.7	76.4	13
Assam	86.4	84.1	86.1	77.8	7.9
Manipur	87.9	84	89.6	77.7	5.2
Meghalaya	89.1	87.3	89.8	83.8	7.7
Mizoram	93.7	94.3	94.4	87	1.2
Nagaland	96.8	97.7	98.3	95.2	0.8
Sikkim	84.5	85	86.7	81.1	10.3
Tripura	85.3	85.2	87.2	79.5	9.1
<b>Rest of India</b>					
Andaman & Nicobar Island	87.6	85.1	91.7	81.9	5.5
Andhra Pradesh	70.6	75.5	74.7	61.3	16
Bihar	80.8	78.4	78.2	71	13.5
Chandigarh	94.6	91.5	93.6	91.5	5.4
Chhattisgarh	88.3	85.8	87.8	81	7.3
D&N Haveli and Daman & Diu	83.7	83.6	81.2	72.3	8.2
Delhi	87.1	78	83.4	72.1	8
Goa	87.6	85.5	89.3	80.5	6.9
Gujarat	85.6	81.7	86.7	75	7.8
Haryana	81.7	78.6	80.4	71.9	12.5
Himachal	87.8	81.7	88.7	75.3	6.1
Jammu & Kashmir	73.8	69.2	75.6	62.5	18.4
Jharkhand	85.7	86	85.9	79.8	9.1
Karnataka	74.4	73.4	74.7	64.5	17.3
Kerala	82.7	81.1	84.6	69.3	5.9
Ladakh	67.1	64.4	67.2	48.4	19.6
Lakshadweep	86.7	90.5	91.3	85.8	7.8
Madhya Pradesh	78.6	75.9	77.3	67.5	14
Maharashtra	82.4	78.2	80.7	69.5	10.2
Odisha	80.1	82.1	81.6	71.2	9.8
Puducherry	81.8	87.4	90.9	72.4	2.1
Punjab	87.6	84	86.5	79.6	8.6
Rajasthan	80.8	73.8	78.4	65.8	12.3
Tamil Nadu	81.9	83.4	86.2	72.7	7.2
Telengana	68.3	76.4	76.2	57.4	12.8
Uttar Pradesh	81.6	80.8	80.9	73.7	12.5
Uttarakhand	84.7	82.2	85.1	76.1	9
West Bengal	81.8	80.8	81.4	72.1	11.1
<b>India</b>	<b>81.1</b>	<b>79.5</b>	<b>81.1</b>	<b>71</b>	<b>11.3</b>

Source: NFHS-5 (2019-21), Vol I



Table 10: Comparison of “maternal care indicators for births to mothers (age 15-49) during the 5 years” in NER with that of other states of India, 2019-21

States	% of “mother who have received all kinds of antenatal care” <sup>^</sup>	% of “deliveries having postnatal health checkup <sup>§</sup> for mother”
<b>States of NER</b>		
Manipur	46.1	76.4
Mizoram	37.3	73
Sikkim	34.9	76.4
Assam	26.9	72
Meghalaya	26.4	69.8
Tripura	15.4	75.6
Arunachal Pradesh	14.4	62.3
Nagaland	5.3	48.6
<b>Rest of India</b>		
Andaman & Nicobar Island	65.9	90.7
Andhra Pradesh	46.8	91.8
Bihar	7.6	65.7
Chandigarh	61.6	97.1
Chhattisgarh	29.7	91.1
D&N Haveli and Daman & Diu	53.6	94.8
Delhi	56.5	89.2
Goa	49	92.6
Gujarat	49	92.6
Haryana	35.3	94.1
Himachal	45.3	92
Jammu & Kashmir	23.4	86.7
Jharkhand	14.9	77.5
Karnataka	34	90.1
Kerala	69.3	85.6
Ladakh	10.4	84.6
Lakshadweep	75.4	90.7
Madhya Pradesh	32.9	88.2
Maharashtra	37.9	87.8
Odisha	49.8	93.8
Puducherry	68.9	90
Punjab	34.4	89.6
Rajasthan	21.7	87.4
Tamil Nadu	71.3	92.7
Telengana	38	91.3
Uttar Pradesh	11.9	81.8
Uttarakhand	31.4	85.8
West Bengal	48.2	73.9
<b>India</b>	<b>31.2</b>	<b>83.2</b>

Source: NFHS-5 (2019-21). Notes: <sup>^</sup>Antenatal care are the care received by the mothers “who received at least one tetanus toxoid injection, and took iron and folic acid tablets or syrup for 100 days or more”.

<sup>§</sup>“Postnatal health checks are the health checkups within 42 days of the birth”.

#### **4. Conclusion**

It is apparent from the above analysis that the performance of the states of NER is better than the country average in both rural areas and urban areas regarding the gender gap in literacy rates and this implies that gender gaps are less in NER than other states of India. It can also be inferred from the analysis that the gender disparity is lower in NER states regarding labour force participation rates. The analysis shows that “the married women who have experienced physical, sexual and emotional violence committed by their husbands” are below country average in other NER states except for Manipur and Assam. However, it is a matter of serious concern for all that, except for Mizoram and Nagaland, the rate of occurrence of various crimes against women is more in NER states than the country average.

One of the important gender-based development parameters is women participation in management and it is revealed from the analysis that the female workers who work in senior level and middle level management positions are higher in NER than the country average except for Assam, Nagaland and Tripura. It is a remarkable success for the NER that the first, second, third and fourth positions in “senior and middle management” positions are occupied by the states of NER. Nevertheless, it is a very disappointing result that participation of women in parliament in NER is below country average except for Meghalaya and Tripura.

Examination of another important parameter revealed the fact that the gender gap in case of rural wages is marginally above the national gap only for some NER states like Assam, Meghalaya and Arunachal Pradesh, however, urban wage gap is almost non-existent in almost all the NER states. Gender gap in the process of decision making is one of the important gender-based development parameters and from the examination of the parameter it is evident that the gender gap in “women's and men's control over earnings and relative magnitude of women's earnings” are is highest in one of the NER states i.e. Tripura followed by Mizoram and Nagaland. No considerable gap has been observed in other NER states. Regarding the gender gap in the process of decision making like the married women “who usually make three particular types of decisions by themselves or jointly with their husband” shows a remarkable achievement by all NER states. All NER states performed very well showing active participation of women in taking decisions in

the family. This analysis may hold the perception that women's status is better in NER states.

However, the condition of NER states is very dismal regarding gender gap in health parameters. In case of the percentage of "women who received all recommended types of antenatal care", the status of NER states is below national average except in Manipur, Mizoram, and Sikkim. Similarly, regarding the indicator "percentage of deliveries with a postnatal health check for the mother", the condition is even worse as all the NER states performed far below country average.

In conclusion, it can be inferred that women's status is better NER states than any other states of India regarding the gender-based parameters like education, labour force participation, wages, involvement in decision making process, involvement in management, and physical, sexual and emotional violence committed by their husbands. Nevertheless, women's status in NER is found below average regarding health parameters, crime against women and participation in parliamentary process. The control over technology and ownership of resources can bring gender equality and may improve position of women in society which may be observed in tribal societies of the North East India.

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## **Online Gaming Addiction and Impact on Health: An Analytical Study**

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### **Abstract**

*The objective of this study is to know the impact of video gaming on respondents' physical and mental health. This study explores the demographic characteristics, behaviours, motivations, and health impacts associated with online gaming among youth. Utilizing a diverse sample, the research found that 63.9% of males and 45.3% of females engaged in video gaming activities, with a significant portion (43.4%) playing for less than an hour per session. Health issues reported included headache (11%), vision problems (12.5%), back pain (3.7%), and neck pain (2.9%), while 35% reported no health-related concerns. The primary motivations for gaming were leisure and fun (45.6%), stress reduction (11.8%), and other factors such as curiosity and influence from friends. A gender disparity in gaming preferences was evident, with males favouring battle royal and adventure games, and females preferring puzzle and endless runner games. Mobile phones emerged as the most popular gaming device among both genders. The study highlights the dual nature of video gaming, noting its potential to both enhance mental stimulation and stress reduction while also posing risks for addictive behaviours and health issues. These findings contribute to a nuanced understanding of gaming culture and its implications, emphasizing the need for balanced engagement with video games to mitigate adverse effects.*

**Keywords:** - Video Gaming, Online gaming, Health problems, Addiction

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## **1. Introduction**

In contemporary society, technology has seamlessly woven itself into the fabric of daily life, becoming indispensable for staying informed and entertained. The proliferation of electronic devices such as smartphones, laptops, and personal computers has ushered in an era where individuals, particularly those who adapt to technology, spend a substantial portion of their time immersed in digital realms. Social media and online gaming have emerged as prominent avenues for leisure and social interaction, offering virtual communities and entertainment options accessible at any time.

The allure of multiplayer online role-playing games (MMORPGs) has captivated individuals, leading them to forge relationships and immerse themselves in virtual worlds, often at the expense of real-life engagements. However, prolonged exposure to gaming environments has raised concerns about addiction and its adverse effects on both physical and mental health. Symptoms ranging from eye strain to aggressive behaviour and withdrawal symptoms have been observed among avid gamers, particularly exacerbated by the surge in gaming during the COVID-19 pandemic.

While video games have been a cultural phenomenon since the 1970s, their popularity has soared in recent decades with advancements in internet connectivity and portable devices. The advent of violent video games in the 1990s has sparked debates regarding their potential influence on aggression, with some experts attributing increased aggression to the "rehearsal" of violent behaviours depicted in games.

Despite the accessibility and inclusivity of video games, concerns persist regarding their impact on individuals, particularly the younger demographic. The World Health Organization (WHO) recognized gaming disorder in 2018, underscoring the need for a balanced understanding of the benefits and drawbacks of video gaming.

Previous research findings on the correlation between violent video games and aggression vary, reflecting the complexity of the issue. Moreover, the COVID-19 pandemic has highlighted the unique role of video games in alleviating stress and providing solace during challenging times, albeit with the potential for overuse and subsequent mental health implications.



To address the phenomenon of technology addiction, initiatives such as India's SHUT (Service for Healthy Use of Technology) clinic have emerged to support individuals grappling with excessive technology usage. As the gap between technology and society widens, interventions such as gaming detoxification are proposed to redirect youths towards more balanced lifestyles.

By unravelling the complexities of gaming addiction and its implications, this study seeks to inform interventions aimed at promoting healthier technology usage habits and enhancing overall well-being.

### **1.1. Statement of Problem**

The main aim of the study is to find out the extent of video gaming addiction that teenagers have in India. An attempt has been made to know the impact of video gaming on people's physical and mental health. The study also tries to identify the reasons behind playing video games. It also makes an effort to diagnose the after-effects of this addiction which even the players are not aware about.

## **2. Review of Literature**

The burgeoning field of online gaming addiction has attracted significant scholarly attention, particularly concerning its antecedents and consequences on youth health. Gong et al. (2020) conducted a seminal study identifying critical antecedents such as social frequency, social norms, and perceived enjoyment and escapism, which drive the thriving online social gaming environment. Their research also highlighted adverse effects, including technology-related conflicts across personal, family, and work spheres. This dual finding underscores the complex interplay between the appeal of social gaming and its potential to disrupt various aspects of life.

In examining the demographic impacts, Aswathy, Devika, and Girish (2019) focused on youth in Kerala, revealing that while a minority did not report health issues due to gaming, a substantial portion experienced various problems, including severe headaches from prolonged screen exposure. Their study utilized both primary and secondary data,

offering a comprehensive analysis of addiction levels and the types of disorders prevalent among young gamers. This aligns with findings from Dahabiyeh, Najjar, and Agrawal (2020), who explored why individuals continue to engage in gaming despite its negative consequences, identifying both positive drivers like curiosity and playfulness and negative outcomes such as increased risk factors associated with excessive playfulness.

Mental health concerns are further corroborated by Prochnow et al. (2020), who found a significant correlation between extensive video gaming and depressive symptoms, particularly due to reduced real-life social involvement. Their multi-level modeling analysis revealed that real-life social support could mitigate some depressive symptoms, emphasizing the importance of balanced social interactions. This notion is supported by Tang, Koh, and Gan (2017), who reported high depression rates among gamers, highlighting the mental health risks associated with internet addiction.

The impact of online gaming extends to social dynamics, as seen in Prochnow *et al.* (2021), who investigated the association between online gaming, depressive symptoms, and social connections during the COVID-19 pandemic. Their findings indicated that depressive symptoms were linked to both online and real-life social interactions, demonstrating how virtual connections can influence mental health.

Gender differences in gaming behaviors were explored by Hota and Derbaix (2016), who found that boys and girls exhibit different motivations for online purchases within games. Boys tended to focus on performance-related purchases, while girls were more interested in enhancing social status and reputation, reflecting diverse psychological and social drivers behind gaming behavior.

Public health responses to gaming addiction have varied globally, with countries like China and South Korea implementing facilities to address the issue. Zastrow (2017) discussed how excessive gaming has become a significant adolescent public health concern, leading to addiction, depression, attention-deficit/hyperactivity disorder, and obsessive behaviors. These findings highlight the need for systematic interventions to address the widespread impact of gaming addiction.

The physiological effects of gaming were further examined by Jagadheeswari, Devi, and Priya (2018), who conducted a comparative study on heart rate and blood pressure

changes induced by different types of video games. Their research showed that M-rated games had a more pronounced effect on increasing these physiological measures, especially in males, compared to E-rated games, demonstrating the tangible health impacts of gaming content. Mohammad et al (2023) identified the consequences of video game addiction and possible treatments for addicts. They found that gamers exhibit symptoms like lying, loss of interest in other activities, social and psychological withdrawal, defensiveness and anger being the most prominent.

Technological solutions to diagnose and manage gaming-related health issues were proposed by Naser and Al-Bayed (2016), who developed an expert system to assist in diagnosing and providing recommendations for health problems associated with video game addiction. Their study highlighted the system's accuracy compared to traditional diagnostic methods, offering a promising tool for healthcare providers.

In summary, the literature consistently underscores the complex relationship between online gaming addiction and various health problems among youth. From psychological and physiological impacts to social and technological influences, these studies collectively emphasize the need for comprehensive strategies to address and mitigate the adverse effects of online gaming. The interconnectedness of these findings highlights the multifaceted nature of gaming addiction and the importance of a holistic approach in research and intervention efforts.

This research paper aims to find a relationship between online gaming addiction and health impacts. No such study is found in India's context. The study also aims to identify both positive and negative effects of gaming. This study offers valuable insights into the demographics, behaviours, motivations, and preferences of video game players, contributing to a deeper understanding of gaming culture and its implications.

### **3. Research Methodology**

A descriptive design has been used for this study. Data for this study is collected through a well-designed questionnaire using an online Google form. The sample size is 136. The sample population for the study has been taken from 14 Indian states. Though the

questionnaire was open for each age group, more than 90 % of respondents were up to 35 years of age. The questionnaire was circulated through personal groups. So, it was based on convenience sampling. IBM SPSS software is used for data statistical analysis. Frequency, percentages, correlation, and factor analysis were used for the purpose.

### **3.1. Objectives and Hypothesis for the study**

The objectives of this study are fourfold. One, to know the impact of video gaming on respondents' physical and mental health; two, to know the level of addiction respondents had; three, to know the reason behind playing video games; and four, to know the after-effects of video gaming. Thus, the null hypothesis of the study is to test that there is no significant relationship between video gaming and health.

## **4. Data Analysis & Discussion**

The sample consisted 136 respondents, out of whom 72 (52.90%) were males and the remaining 64 (47.10%) were female respondents (N=136). 128 (94.10%) respondents were of the age group of 15 to 35 years; while 5 responses were from 35 to 55 age category. We had received no respondents who were above the age of 55 years of age categories. 121 (89.10%) respondents belong to a category of higher education while only 15 (11.10%) respondents were from the primary to higher secondary education category. Students constituted (78.7%) the largest part of the sample. Though the questionnaire was circulated online, the most of responses came from Delhi, Haryana and Rajasthan (67%). It covered 14 states of India. Table 1 gives the demographic characteristics of the sample that we have collected. Table 2 gives the state-wise distribution of respondents. Majority respondents are from Delhi.

Table 3 gives the cross-tabulation of respondents who play video games with the gender of the respondents. Out of the sample size of 136 responses 75 (55.10%) respondents play video games, which include 46 (63.90%) male and 29 (45.30%) female respondents. It is evident from the sample that males are more prone to play video games.

Table 1: Demographic Profile of the Respondent

	Frequency	Percent
<b>Gender</b>		
Male	72	52.90%
Female	64	47.10%
<b>Age Group</b>		
Below 15 years	3	2.20%
15-25 years	117	86.00%
25-35 years	11	8.10%
35-45 years	4	2.90%
45- 55 years	1	0.70%
<b>Highest Educational Qualification</b>		
Upper primary Education	3	2.20%
Secondary Education	2	1.50%
Higher Secondary Education	10	7.40%
Bachelor's Degree	73	53.70%
Master Degree	44	32.40%
Doctoral Degree	2	1.50%
Professional Course	2	1.50%
<b>Occupation</b>		
Student	107	78.70%
Government Employee	14	10.30%
Private Employee	6	4.40%
Businessman/ Businesswoman	2	1.50%
House maker	4	2.90%
Self Employed (Tuitions, etc)	3	2.20%
<b>Family Monthly Income</b>		
Below Rs. 35,000 pm	36	26.50%
35,000 to 60,000 pm	43	31.60%
60,000 to 85,000 pm	21	15.40%
85,000 to 1,10,000 pm	11	8.10%
1,10,000 to 1,35,000 pm	6	4.40%
Above 1,35,000 pm	19	14.00%

Source: Authors' calculations based on the survey data

Table 2: Frequency Distribution of place of residence of the Respondents

Indian State or UT	Frequency	Percent
Assam	1	0.70%
Bihar	2	1.50%
Delhi	44	32.40%
Haryana	21	15.40%
Himachal Pradesh	1	0.70%
Jharkhand	2	1.50%
Kerala	4	2.90%
Maharashtra	15	11.00%
Meghalaya	1	0.70%
Mizoram	3	2.20%
Punjab	2	1.50%
Rajasthan	26	19.10%
Uttar Pradesh	12	8.80%
Uttarakhand	2	1.50%

Source: Authors' calculations based on the survey data

Table 3: Cross-tabulation of respondents who play video games across Gender

Whether respondents play video games or not		Gender of the Respondent		Total
		Male	Female	
Yes	Count	46	29	75
	% within	63.90%	45.30%	
No	Count	26	35	61
	% within	36.10%	54.70%	
Total	Count	72	64	136

Source: Authors' calculations based on the survey data

Table 4: Frequency distribution of daily time spent on video games by the respondents

Per day time spent on Video games	Frequency	Percent
upto 1 hour	59	43.40%
1 - 3 hours	17	12.50%
3 - 5 hours	6	4.40%
5 - 7 hours	1	0.70%
7 - 9 hours	1	0.70%
Greater than 9 hours	1	0.70%
Not Applicable	51	37.50%

Source: Authors' calculations based on the survey data

Table 4 gives the percentage of respondents, by the time they spend on video games. 76 respondents, comprising 55.90 percent of sample play video games less than 3 hours daily whereas only 3 (2.10%) respondents play video games more than 5 hours daily.

Table 5 gives the frequency and percentage of respondents by how many times they play video games in a week or in a month. 45 (33.10%) respondents said that they do not play video games at all. 51 (37.50%) respondents said that they rarely play video games. 26 (19.10%) respondents agreed that they play video games occasionally, ranging from daily basis to nearly ten times in a month.

There could be a possibility that respondents pay a fee to play these video games. Table 6 shows the frequency and percentage of respondents who have spend some money to buy video games to play regularly. In our sample, 125 (91.90%) respondents didn't spend a penny on buying video games. Only 11 (8.10%) respondents from the sample size of 136 respondents spent money for buying video games. Most of the players are using freely available apps to play video games.

Given that majority prefer not to spend any money on buying video games; next obvious question that comes is from which source they procure these games. We found that out of 82 respondents who have acquired these video games, 73 (89.02%) respondents have acquired video games via downloading, while only 2 (2.43%) and 7 (8.53%) respondents have acquired video games via buying and borrowing, respectively. Table 7 shows this information.

Covid lockdown was the time when majority people have time. Thus, it could be a possibility that many people have started playing video games during the lockdown period, mainly to curb their boredom. In our survey, we asked our respondents whether they have started playing video games before the lockdown period, or during the lockdown period. Table 8 shows the frequency and percentage of such respondents. 65 (47.80%) respondents started playing video games before COVID-19 pandemic and 18 (13.20%) respondents started playing video games after the start of COVID-19 pandemic. Thus, in our study, it appears that COVID-19 didn't seem to have a significant influence on video game-playing habit of respondents. They were already addicted to video games.

Table 5: Frequency distribution of frequency of playing video games by the respondent

Frequency of playing video games by the respondent	Frequency	Percent
Daily	14	10.30%
3-6 times in a week	18	13.20%
8-10 times in a month	8	5.90%
Rarely	51	37.50%
Not Applicable	45	33.10%

Source: Authors' calculations based on the survey data

Table 6: Frequency distribution of money spent on video games by the respondent

Spent money for buying video games	Frequency	Percent
Yes	11	8.10%
No	125	91.90%

Source: Authors' calculations based on the survey data

Table 7: Frequency distribution of how respondents prefer to acquire video games

Prefer to acquire video games through	Frequency	Percent
Downloading	73	53.70%
Buying	2	1.50%
Borrowing or sharing	7	5.10%
Not Applicable	54	39.70%

Source: Authors' calculations based on the survey data

Table 8: Frequency distribution of when respondents started playing video games

When did Respondent started playing Video games	Frequency	Percent
Before COVID-19 Pandemic	65	47.80%
After COVID-19 Pandemic	18	13.20%
Not Applicable	53	39.00%

Source: Authors' calculations based on the survey data

Table 9: Frequency distribution of reasons for playing video games

Reasons behind playing Video games	Frequency	Percent
Leisure and fun	62	45.60%
Earnings or Profession	2	1.50%
For better hand-eye coordination	4	2.90%
Sense Competency and Autonomy	4	2.90%
To reduce Stress, anxiety and depression	16	11.80%
I don't have many real friends	3	2.20%
Not Applicable	45	33.10%

Source: Authors' calculations based on the survey data



We also asked the respondents about the reasons behind playing video games. It is evident from Table 9 that 62 (68.13%) respondents played for leisure & fun; 16 (17.58%) respondents played to reduce stress, anxiety, and depression; 4 (4.39%) respondents played for having better hand-eye co-ordination and to have sense of competency and autonomy; 2 (2.19%) play as earnings or profession; whereas 3 (3.70%) respondents played because respondents don't have many real friends.

The questionnaire also included the question on what or who attracted the respondents to play video games. Friends and curiosity collectively have 74 (54.5%) responses that attracted respondents to play video games while rating and reviews influenced only 5 (3.70%) respondents. Table 10 shows these results.

Table 11 presents data on health issues faced by the respondents while playing video games. 'Vision Problems' and 'Headache' are common problems faced by video gamers though their overall percentage (23.5%) seems to be low.

We have also made two-way tables. Table 12 shows the cross-tabulation of gender of respondent and the type of video games they play. From the sample size of 136, 36 respondents played battle royal games out of which 30 (41.70%) were males and 6 (9.40%) were females. Battle games, Puzzle games, and Adventure games are the most popular games among males while females placed Puzzle games at first place and Runner games being the second most popular. So preferences of males and females are different as far as video games are concerned.

Table 13 presents the cross-tabulation of the data on the device respondents used for playing video games by gender. Both males (66.7%) and females (59.4%) prefer to play video games on their mobile phones. Accessibility to good quality mobile phones and cheap internet services has contributed a lot towards the popularity of the video gaming industry.

Table 14 shows that a large percentage (39.7%) of the respondents witnessed negative changes after playing video games. They felt lazy, sleepy and heaviness in their body. 17.6% respondents said that they felt fresh and energetic after playing video games. This provides evidence that playing video games does not necessarily have a negative impact on the human body and mind (Bourgonjon et al., 2016).

Table 10: Frequency distribution of what/who attracted the respondent to play video games

What/who attracted the respondent to play video game	Frequency	Percentage
Friends	44	32.40%
Curiosity	30	22.10%
Advertisements	3	2.20%
Official YouTube, Facebook, Instagram and Twitter Channels	3	2.20%
Rating and reviews	5	3.70%
Not Applicable	50	36.80%
Others	1	0.70%

Source: Authors' calculations based on the survey data

Table 11: Health issues faced while playing video games

Health issues faced while playing video games	Frequency	Percent
Headache	15	11.00%
Vision Problems	17	12.50%
Back pain	5	3.70%
Neck pain	4	2.90%
No health issues	48	35.30%
Not Applicable	47	34.60%

Source: Authors' calculations based on the survey data

Table 12: Cross-tabulation of Type of video game and gender of the respondent

Type of games played		Gender		Total
		Male	Female	
Battle royal games	Count	30	6	36
	% within Gender	41.70%	9.40%	
Adventure games	Count	10	2	12
	% within Gender	13.90%	3.10%	
Simulation games	Count	5	4	9
	% within Gender	6.90%	6.30%	
Puzzle games	Count	12	25	37
	% within Gender	16.70%	39.10%	
Endless Runner games	Count	6	11	17
	% within Gender	8.30%	17.20%	
Other games	Count	3	4	7
	% within Gender	4.20%	6.30%	
Not play any game	Count	19	25	44
	% within Gender	26.40%	39.10%	
Total	Count	72	64	136

Source: Authors' calculations based on the survey data using SPSS

Table 13: Cross-tabulation of Device used for video game and gender of the respondent

Device used		Gender		Total
		Male	Female	
Mobile Phone	Count	48	38	86
	% within Gender	66.70%	59.40%	
Personal Computer (PC)	Count	12	3	15
	% within Gender	16.70%	4.70%	
Laptop/ Tablet	Count	4	7	11
	% within Gender	5.60%	10.90%	
Console	Count	2	0	2
	% within Gender	2.80%	0.00%	
Not play any game	Count	19	24	43
	% within Gender	26.40%	37.50%	
Total	Count	72	64	136

Source: Authors' calculations based on the survey data using SPSS

Table 14: Frequency distribution of changes felt by the respondent

Changes felt by respondents playing video games frequently	Frequency	Percent
Positive Change	24	17.60%
Negative Change	54	39.70%
No Change	58	42.60%
Total	136	100.00%

Source: Authors' calculations based on the survey data using SPSS

#### 4.1. Factor Analysis

The research study aimed to investigate the various impacts of video gaming specifically on youth, encompassing both positive and negative effects. The survey included 136 respondents, and the descriptive statistics for 21 key factors were analyzed. The mean values ranged from 2.28 to 3.59, with higher values indicating stronger agreement among respondents. Table 15 shows the results.

Respondents reported a moderate negative impact on their health due to video gaming, with a mean score of 3.54 (SD = 1.141). Health issues identified included weakened eyesight (mean = 3.59, SD = 1.250), increased sleeping disorders (mean = 3.30, SD = 1.318), and a reduction in time spent with family and friends (means of 3.43 and 3.13, respectively). These findings align with previous studies that have highlighted the adverse physical and social effects of excessive gaming (Aswathy, Devika, & Girish, 2019; Prochnow et al., 2020).

Table 15: Descriptive Statistics

Descriptive Statistics	Mean	Std. Deviation	N
1. Negative impact on health	3.54	1.141	136
2. A way of escaping from stress and depression	2.94	1.16	136
3. Makes less social	2.96	1.216	136
4. Reduces time spent with family	3.43	1.245	136
5. Reduce time spent with friends	3.13	1.287	136
6. Increases sleeping disorder	3.3	1.318	136
7. Weaken overall eyesight	3.59	1.25	136
8. Improve near-sightedness	2.84	1.194	136
9. Makes Obese	2.93	1.248	136
10. Improves social skills	2.71	1.141	136
11. Improve reflex action	3.1	1.182	136
12. Improves decision making	3.02	1.158	136
13. Not prefer video games to going out	3.12	1.339	136
14. Improve dexterity	2.91	1.138	136
15. Improves mental health	2.71	1.143	136
16. Makes aggressive	2.86	1.143	136
17. Increases anxiety	2.82	1.162	136
18. Reduces gaming addiction	2.28	1.107	136
19. Hold off toilet just to complete a game	2.69	1.297	136
20. Skip meals to finish video game	2.49	1.223	136
21. Don't feel frustrated if unable to play Video game.	3.2	1.376	136

Source: Authors' calculations based on the survey data using SPSS

Table 16 Scale- Reliability Analysis

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.885	0.884	21

Source: Authors' calculations based on the survey data using SPSS

Table 17 Inter-Item Correlation Matrix

Inter-Item Correlation Matrix																					
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21
Q1	1.000	0.008	0.359	0.555	0.571	0.560	0.579	0.119	0.390	0.047	0.002	-0.116	0.447	0.020	0.016	0.428	0.428	0.049	0.305	0.218	0.119
Q2	0.008	1.000	0.192	0.100	0.000	0.104	0.116	0.020	0.059	0.289	0.296	0.310	0.038	0.220	0.233	0.038	0.019	0.105	0.234	0.245	0.105
Q3	0.359	0.192	1.000	0.463	0.581	0.447	0.392	0.148	0.603	0.108	-0.064	-0.094	0.185	0.024	0.124	0.385	0.309	0.169	0.325	0.298	-0.008
Q4	0.555	0.100	0.463	1.000	0.737	0.652	0.704	0.296	0.552	0.201	0.106	0.081	0.427	0.257	0.130	0.526	0.551	0.069	0.408	0.335	0.145
Q5	0.571	0.000	0.581	0.737	1.000	0.662	0.647	0.207	0.609	0.102	0.035	-0.022	0.416	0.099	0.052	0.551	0.546	0.130	0.264	0.222	0.136
Q6	0.560	0.104	0.447	0.652	0.662	1.000	0.692	0.177	0.566	0.225	0.046	0.064	0.349	0.067	0.045	0.539	0.597	0.054	0.458	0.359	0.146
Q7	0.579	0.116	0.392	0.704	0.647	0.692	1.000	0.337	0.547	0.155	0.104	0.109	0.361	0.162	0.117	0.597	0.605	-0.007	0.300	0.185	0.207
Q8	0.119	0.020	0.148	0.296	0.207	0.177	0.337	1.000	0.276	0.167	0.190	0.206	0.202	0.333	0.329	0.217	0.283	0.085	0.116	0.054	0.137
Q9	0.390	0.059	0.603	0.552	0.609	0.566	0.547	0.276	1.000	0.200	0.100	0.068	0.310	0.142	0.116	0.523	0.492	0.040	0.417	0.273	0.197
A10	0.047	0.289	0.108	0.201	0.102	0.225	0.155	0.167	0.200	1.000	0.593	0.560	0.182	0.482	0.526	0.225	0.077	0.205	0.255	0.302	0.296
Q11	0.002	0.296	-0.064	0.106	0.035	0.046	0.104	0.190	0.100	0.593	1.000	0.659	0.222	0.563	0.461	0.219	0.084	0.176	0.176	0.170	0.415
Q12	-0.116	0.310	-0.094	0.081	-0.022	0.064	0.109	0.206	0.068	0.560	0.659	1.000	0.156	0.603	0.548	0.187	0.075	0.065	0.246	0.259	0.327
Q13	0.447	0.038	0.185	0.427	0.416	0.349	0.361	0.202	0.310	0.182	0.222	0.156	1.000	0.342	0.197	0.325	0.366	0.058	0.341	0.336	0.337
Q14	0.020	0.220	0.024	0.257	0.099	0.067	0.162	0.333	0.142	0.482	0.563	0.603	0.342	1.000	0.538	0.269	0.105	0.161	0.197	0.228	0.290
Q15	0.016	0.233	0.124	0.130	0.052	0.045	0.117	0.329	0.116	0.526	0.461	0.548	0.197	0.538	1.000	0.224	0.087	0.335	0.193	0.193	0.358
Q16	0.428	0.038	0.385	0.526	0.551	0.539	0.597	0.217	0.523	0.225	0.219	0.187	0.325	0.269	0.224	1.000	0.711	0.031	0.415	0.324	0.192
Q17	0.428	0.019	0.309	0.551	0.546	0.597	0.605	0.283	0.492	0.077	0.084	0.075	0.366	0.105	0.087	0.711	1.000	0.081	0.399	0.292	0.268
Q18	0.049	0.105	0.169	0.069	0.130	0.054	-0.007	0.085	0.040	0.205	0.176	0.065	0.058	0.161	0.335	0.031	0.081	1.000	0.184	0.211	0.197
Q19	0.305	0.234	0.325	0.408	0.264	0.458	0.300	0.116	0.417	0.255	0.176	0.246	0.341	0.197	0.193	0.415	0.399	0.184	1.000	0.791	0.205
Q20	0.218	0.245	0.298	0.335	0.222	0.359	0.185	0.054	0.273	0.302	0.170	0.259	0.336	0.228	0.193	0.324	0.292	0.211	0.791	1.000	0.101
Q21	0.119	0.105	-0.008	0.145	0.136	0.146	0.207	0.137	0.197	0.296	0.415	0.327	0.337	0.290	0.358	0.192	0.268	0.197	0.205	0.101	1.000

Source: Authors' calculations based on the survey data using SPSS

Video gaming as a means of escaping stress and depression scored a mean of 2.94 (SD = 1.160), indicating a relatively lower agreement. However, respondents acknowledged that gaming could lead to less social interaction (mean = 2.96, SD = 1.216) and increased anxiety (mean = 2.82, SD = 1.162). These results resonate with findings from Dahabiyeh, Najjar, & Agrawal (2020), which identified both positive and negative psychological effects of gaming.

The study also examined the potential benefits of video gaming. Participants somewhat agreed that gaming could improve reflex action (mean = 3.10, SD = 1.182) and decision-making skills (mean = 3.02, SD = 1.158). Improvement in social skills, however, received a lower mean score of 2.71 (SD = 1.141), suggesting that while cognitive and motor benefits exist, social benefits might be limited. Addictive behaviours were evident, with respondents indicating tendencies to hold off going to the toilet (mean = 2.69, SD = 1.297) and skip meals (mean = 2.49, SD = 1.223) to continue playing. These behaviours underscore the potential for gaming addiction and routine disruptions, echoing concerns raised in studies by Zastrow (2017) and Prochnow et al. (2021).

Reliability is considered satisfactory if Cronbach's Alpha ( $\alpha$ ) is equal to or greater than 0.70, as Hair (2013) suggested. The value was found to be 0.885 showing a strong internal consistency of the construct.

The Inter-Item Correlation Matrix provides insight into the correlation between each pair of items in the scale. Values close to 1 indicate a high correlation between items, suggesting that they are likely measuring the same construct. Conversely, values below 0.5 indicate poor correlation, suggesting that the items may not be measuring the same construct effectively.

The matrix values support the reliability statistics, showing that most items are highly correlated with each other. This further validates the consistency and reliability of the construct measured by the 21-item scale.

Additionally, the Inter-Item Correlation Matrix revealed that most items were strongly correlated, with values close to 1, indicating a high degree of consistency among the items. Values below 0.5 were sparse, suggesting a minimal poor correlation. This matrix

further supports the reliability of the scale by demonstrating that the items are cohesively measuring the intended construct.

These findings confirm that the scale used in this study is both reliable and valid, making it a robust tool for measuring the constructs of interest. The high internal consistency ensures that the results derived from this scale are dependable and can be used confidently in further analysis and interpretation of the study’s outcomes.

To further analyze the data ‘factor analysis’ was applied. The factor analysis revealed five factors with eigenvalues greater than 1, collectively explaining 66.291% of the total variance. The first factor, accounting for 27.596% of the variance, was primarily associated with the negative impacts of video gaming, including health issues and social disruption. The second factor, explaining 18.035% of the variance, related to mental development benefits such as improved reflex actions and decision-making. The third factor (8.918%) highlighted changes in routine activities, while the fourth factor (5.946%) indicated addictive behaviors. The fifth factor (5.796%) represented non-addictive or neutral attitudes towards gaming. (Table 18)

**Table 18: Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% Of Variance	Cumulative %	Total	% Of Variance	Cumulative %	Total	% Of Variance	Cumulative %
1	6.754	32.161	32.161	6.754	32.161	32.161	5.795	27.596	27.596
2	3.456	16.459	48.62	3.456	16.459	48.62	3.787	18.035	45.631
3	1.507	7.175	55.796	1.507	7.175	55.796	1.873	8.918	54.549
4	1.134	5.402	61.198	1.134	5.402	61.198	1.249	5.946	60.495
5	1.07	5.093	66.291	1.07	5.093	66.291	1.217	5.796	66.291
6	0.918	4.371	70.663						
7	0.833	3.968	74.631						
8	0.732	3.488	78.119						
9	0.695	3.31	81.429						
10	0.583	2.777	84.206						
11	0.509	2.424	86.63						
12	0.446	2.122	88.753						
13	0.403	1.92	90.673						
14	0.346	1.648	92.321						
15	0.324	1.544	93.866						
16	0.277	1.32	95.185						
17	0.25	1.188	96.374						
18	0.233	1.108	97.482						
19	0.212	1.008	98.49						
20	0.177	0.841	99.331						
21	0.14	0.669	100						

Extraction Method: Principal Component Analysis.

Source: Authors' calculations based on the survey data using SPSS

Table 19: Rotated Component Matrix

	Components				
	1	2	3	4	5
Q1 Negative impact on health	0.684	-0.119	0.136	0.039	0.224
Q2 A way of escaping from stress and depression	0.029	0.418	0.325	-0.004	-0.491
Q3 Makes less social	0.628	-0.059	0.14	0.372	-0.43
Q4 Reduces time spent with family	0.823	0.122	0.106	0.028	0.017
Q5 Reduce time spent with friends	0.852	-0.03	-0.002	0.158	0.017
Q6 Increases sleeping disorder	0.798	0.027	0.244	-0.038	-0.008
Q7 Weaken overall eyesight	0.847	0.136	-0.039	-0.103	0.043
Q8 Improve near-sightedness	0.373	0.376	-0.346	0.159	0.025
Q9 Makes Obese	0.749	0.1	0.091	0.11	-0.13
Q10 Improves social skills	0.11	0.734	0.177	0.102	-0.099
Q11 Improve reflex action	0.009	0.812	0.073	-0.017	0.13
Q12 Improves decision making	-0.028	0.851	0.15	-0.141	0.015
Q13 Not prefer video games to going out	0.438	0.202	0.241	0.031	0.531
Q14 Improve dexterity	0.119	0.776	0.008	0.046	0.12
Q15 Improves mental health	0.061	0.722	-0.027	0.391	0.033
Q16 Makes aggressive	0.715	0.22	0.149	-0.085	0.114
Q17 Increases anxiety	0.727	0.06	0.14	-0.036	0.264
Q18 Reduces gaming addiction	-0.011	0.14	0.135	0.882	0.087
Q19 Hold off toilet just to complete a game	0.368	0.174	0.796	0.099	0.05
Q20 Skip meals to finish video game	0.244	0.185	0.845	0.128	-0.002
Q21 Don't feel frustrated if unable to play Video game.	0.134	0.432	0.056	0.185	0.551

Source: Authors' calculations based on the survey data using SPSS

The first factor strongly loaded on variables related to negative health impacts and social disruptions. The second factor had strong loadings on variables reflecting mental and cognitive development. The third factor focused on routine disruptions due to gaming. The fourth factor emphasized addictive behaviours, while the fifth factor included items related to non-addictive tendencies.

Overall, the findings from the factor analysis provide a structured understanding of the diverse impacts of video gaming on youth, emphasizing both the potential benefits and significant risks associated with prolonged gaming activities. This comprehensive analysis highlights the need for balanced gaming habits to mitigate adverse effects while leveraging the positive aspects of gaming.

These findings offer valuable insights into the demographics, behaviours, motivations, and preferences of video game players, contributing to a cavernous understanding of gaming culture and its inferences.

## 5. Conclusion

This study delves into the demographic characteristics, behaviours, motivations, and health impacts associated with online gaming among youth. The research sample revealed that 63.9% of male and 45.3% of female participants engaged in video gaming activities. A significant portion, 43.4% of the respondents, reported playing for less than an hour per session. Health issues linked to gaming included headaches (11%), vision problems (12.5%), back pain (3.7%), and neck pain (2.9%), although 35% of respondents reported no health-related concerns. The primary motivations for gaming were identified as leisure and fun (45.6%), stress reduction (11.8%), with other factors such as curiosity and influence from friends also playing significant roles. Gender disparities in gaming preferences were notable, with males showing a preference for battle royal. The realm of video gaming has attained widespread popularity and success as a form of entertainment, particularly resonating with individuals aged between 15 to 35 years, encompassing a diverse demographic. Central to its allure is the primary objective of delivering entertainment, thereby bolstering the gaming industry through heightened customer satisfaction and fostering addictive engagement. Our findings underscored a gender disparity in gaming preferences, with male respondents exhibiting greater proclivity towards battle and adventure games, while female respondents displayed a penchant for endless runner and puzzle games. Furthermore, our analysis revealed that prolonged engagement with video games, whether online or offline, may engender addictive behaviours, impacting various facets of health such as sleep patterns, social interaction, and physical well-being including headaches and vision problems. Nonetheless, the positive ramifications of online gaming, including mental stimulation and stress reduction, were also evident. In summation, this study elucidates the dual nature of video gaming, showcasing its capacity to both enrich and potentially detract from real-world experiences, thereby emphasizing the need for a balanced understanding of its impacts.

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## **Political Economy of Global Energy Markets- Effects of Russia-Ukraine War**

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### **Abstract**

*In the ever-evolving global landscape, geopolitical events hold the power to reshape not just political boundaries but the intricate fabric of economies. The Russia-Ukraine conflict, a chapter marked by complexity and uncertainty, emerges as a pivotal force with ramifications extending beyond mere political posturing. Within this labyrinth, the delicate dance between geopolitical events and the global energy sector unfolds, creating a dynamic tapestry of consequences. This research paper embarks on a nuanced exploration, delving into the intricate repercussions of the conflict on global energy markets. From the volatility in oil prices to the transformative potential for renewable energy, our analysis transcends mere data presentation, offering a holistic understanding of the symbiotic relationship between geopolitical events and economic landscapes.*

**Keywords:** Global Energy Markets, Russia-Ukraine War, Geopolitical events

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## **1. Introduction**

In the grand theatre of global events, few narratives unfold with the depth and complexity witnessed in the Russia-Ukraine conflict. This conflict, fuelled by historical intricacies and geopolitical ambitions, transcends its immediate actors to inscribe its influence on the global economic stage. As this conflict unfolds, it unfurls an economic maelstrom that casts uncertainties over established trade routes, resource allocations, and market dynamics. The energy market, a pivotal arena where nations recalibrate their strategies amidst geopolitical tensions, becomes a crucible for recalibrations that manifest most acutely.

Rooted in historical complexities and regional power struggles, the Russia-Ukraine conflict has evolved into a multifaceted challenge with implications that reach far beyond its immediate actors. Territorial disputes and geopolitical ambitions intertwine, setting the stage for a conflict that resonates across political and economic landscapes. As nations recalibrate their strategies in the face of geopolitical tensions, the energy market becomes a battleground where these recalibrations manifest most acutely. From oil and natural gas price volatility to transformative shifts in renewable energy dynamics, the conflict inscribes its influence on the intricate web of global economics.

This paper unfolds as a beacon in this maelstrom, illuminating the intricate connections between the Russia-Ukraine conflict and the global energy landscape. We venture beyond the surface-level analysis, probing the depths of economic consequences, market dynamics, and the transformative potential for green energy in the aftermath of geopolitical tremors.

## **2. Literature Review**

The ongoing Russia-Ukraine war has had a deep consequence on global energy markets, sending shockwaves through the entire system. The immediate impact of the war was a significant surge in oil prices, driven by sanctions on Russia, a key oil producer, and concerns about supply disruptions. Several studies have documented this price increase, including a 0.5% reduction in global GDP growth in 2022 due to the war, largely attributed to rising energy prices (IMF, 2022). As is known that conflicts between nations

always results into adverse impact on human life, it is estimated that global oil prices would remain elevated for most of 2022 and potentially beyond, highlighting the potential for a prolonged impact on the market due to Russia- Ukraine war (IEA, 2022). In addition to adverse impact on socio-economic and political life of people, the conflict between Russia and Ukraine will be one of the factors contributing to price volatility and emphasized the uncertainty surrounding future prices.

Data from OPEC and the BP Statistical Review of World Energy provides comprehensive volatile picture of production and consumption changes across regions. There will be specific trade flow disruptions, particularly the impact on refined products and tanker movements across the regions due to fluctuations in oil prices which may bring adverse long-term consequences for the global economy (CREA).

The impact of the war on the natural gas market was even more pronounced, particularly in Europe, which relied heavily on Russian gas imports and there may be shortages of gas in Europe which has huge implications for energy security in these regions, Bruegel (2022). Looking at the historical and geopolitical context of the gas trade between Russia and Europe, there is potential for diversification of supply sources Oxford Institute for Energy Studies (2022). Exploring the long term implications for Europe's energy security due to the war between Russia and Ukraine, there is higher probability of vulnerability of Europe's energy security due to its dependence on Russian gas and there is also need for diversification strategies (CEPS) (2022).

While the war has disrupted traditional energy markets, it has also served as a catalyst for the acceleration of renewable energy development and it has given a wake-up call for countries to focus on green energy for all kind of energy requirements (IRENA) (2022). There are some countries who have understood the importance of investment in sources of renewable energy and there has been noticeable shift in global renewable energy investment trends from non-renewable sources of energy due to this conflict (BNEF, 2022). Further, there is the potential for the war to accelerate the transition to clean energy, highlighting the need for increased investment and policy support (IEA, 2022).

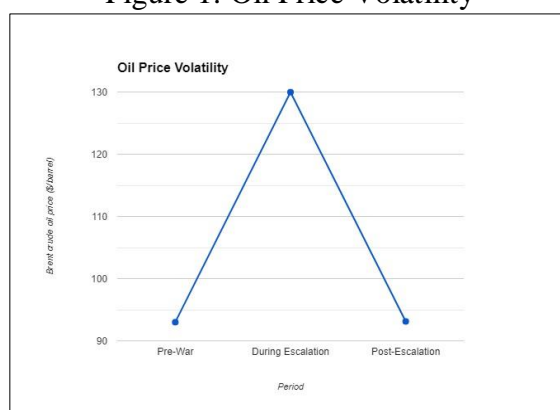
### 3. Methodology

This study is completely based in secondary data. To dissect the impact of the Russia-Ukraine conflict on global energy markets, our research employs a methodological approach that amalgamates real-time market indicators, economic reports, and geopolitical analyses. This multifaceted methodology facilitates a nuanced understanding of the multifaceted repercussions of geopolitical events on energy markets. The core of our methodology involves a meticulous comparative analysis, tracking energy prices, production-consumption dynamics, and trade flows across different phases of the conflict. The aim is not just to present data but to distil meaningful insights and draw connections that elucidate the profound impacts on the energy ecosystem.

### 4. Data Analysis and Policy Recommendations

The journey of Brent crude oil prices amid the Russia-Ukraine conflict resembles a financial rollercoaster. Pre-war stability at \$93 per barrel gave way to a dramatic surge during the escalation, peaking at \$129.97 per barrel. Post-escalation, ongoing tensions have tempered the fervour, yet prices remain elevated at \$93.12 per barrel. This is shown in Figure 1. This volatility underscores not only the immediate impact of geopolitical events but also the sustained ripples through market sentiments.

Figure 1: Oil Price Volatility



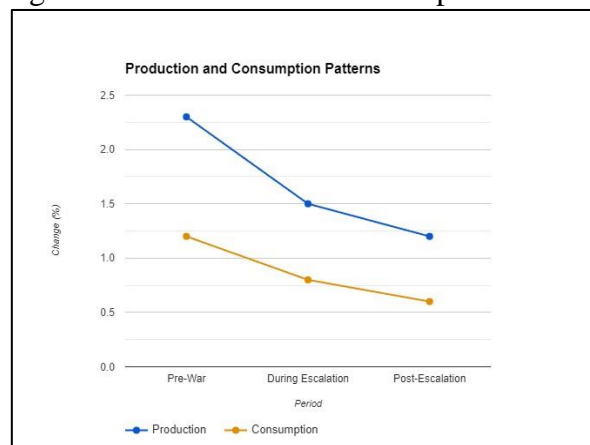
Source: IEA (2022)

Beyond the numerical dance of percentages, the conflict has triggered discernible shifts in the fundamental dynamics of global oil production and consumption. The pre-war era revelled in robust growth, with a 2.3% uptick in production and a 1.2% rise in



consumption. As tensions peaked, the growth rates waned, reflecting a nuanced slowdown to 1.5% for production and 0.8% for consumption. Post-escalation, the growth rates continued their descent, reaching 1.2% and 0.6%, respectively. These nuanced shifts beckon a closer examination, inviting us to contemplate the deeper economic undercurrents at play. Figure 2 shows these trends.

Figure 2: Production and Consumption Patterns



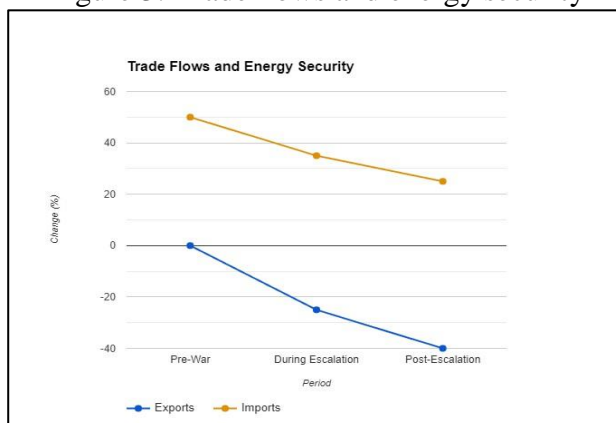
Source: IEA (2022)

The impact on trade flows and energy security is a testament to the intricate dance between geopolitical shifts and economic interdependence. The initial escalation bore witness to a seismic 25% reduction in oil exports from affected regions, echoing the immediate disruptions caused by geopolitical unrest. Import dependence on these regions concurrently saw a 15% decline, signalling a swift recalibration of energy supply chains. Post-escalation, while the decline in oil exports moderated to 15%, the reduction in import dependence deepened to 10%. These shifts, beyond the numerical metrics, underscore the adaptability and resilience of nations in the face of geopolitical uncertainties. Figure 3 shows these trends.

The narrative of natural gas prices during the Russia-Ukraine conflict mirrors the complexities inherent in geopolitically charged environments. In the pre-war era, European natural gas prices found stability at €120 per megawatt-hour (MWh). However, the initial escalation witnessed a meteoric rise, culminating in a peak of €211.00 per MWh. Post-escalation, the fervour subsided, but prices remained elevated, settling at €120.00 per MWh. This price trajectory highlights not only the immediate shocks induced

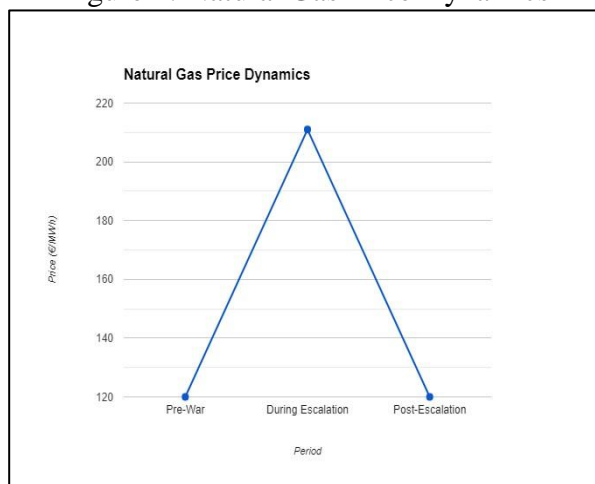
by geopolitical events but also the lingering echoes that persist in the post-conflict landscape. Figure 4 shows this pattern.

Figure 3: Trade flows and energy security



Source: IEA (2022), BP (2022)

Figure 4: Natural Gas Price Dynamics

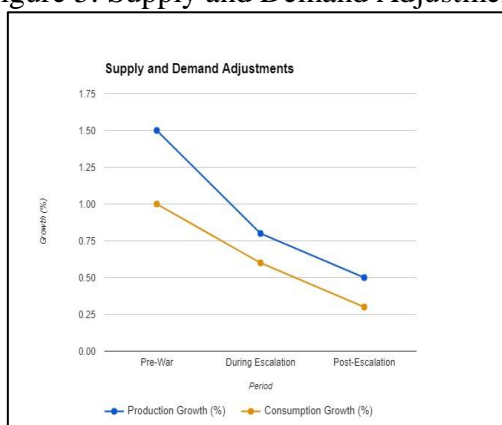


Source: IEA (2022)

The nuanced dance between global natural gas production and consumption during the conflict underlines the intricate interplay between geopolitical events and market dynamics. Pre-war, the world witnessed a 1.5% increase in natural gas production and a corresponding 1.0% uptick in consumption, reflective of a harmonious growth trajectory. However, as tensions escalated, the growth rates experienced a perceptible slowdown to 0.8% for production and 0.6% for consumption. Post-escalation, these growth rates further decelerated, reaching to 0.5% for production and 0.3% for consumption. This

intricate dance suggests not just a numerical adjustment but a fundamental recalibration in the global natural gas landscape. Figure 5 shows these patterns.

Figure 5: Supply and Demand Adjustments



Source: OIES (2022)

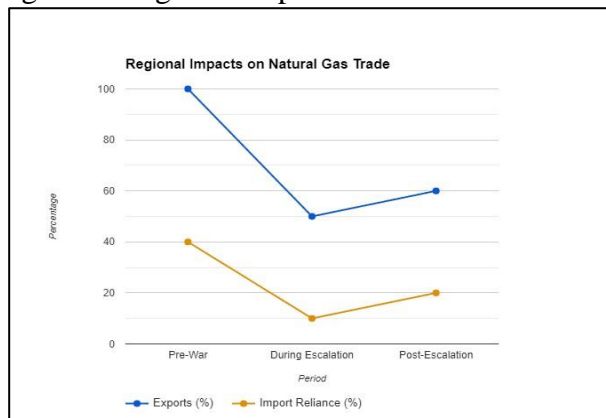
The geopolitical tremors of the conflict reverberated through the natural gas trade, altering established patterns and redefining regional dependencies. The initial escalation witnessed a seismic 50% decline in natural gas exports from affected regions, marking a stark departure from stability. Import reliance on these regions simultaneously decreased by 30%, indicative of a rapid diversification of energy sourcing strategies. Post-escalation, while the decline in exports moderated to 40%, the reduction in import reliance deepened to 20%. These shifts echo a profound transformation in the dynamics of natural gas trade, unravelling not only economic intricacies but also geopolitical considerations. Figure 6 shows these trends.

India, amidst the tumult of geopolitical tensions, stands as a beacon of transformative change in the renewable energy sector. The pre-conflict era witnessed India attracting over \$150 billion in renewable energy investments. Post-conflict projections paint a vivid picture of resilience and forward momentum, with investments expected to surge by 25% in 2023 compared to 2022. This surge is not merely a numerical uptick but a testament to the intrinsic belief in the sustainable energy future, even in the face of global geopolitical uncertainties. Figure 7 shows these trends.

Against the backdrop of geopolitical uncertainties, the Indian government emerges as a proactive orchestrator of change. Pre-conflict, the government had already taken strides to bolster the renewable energy sector by increasing subsidies for solar and wind energy by

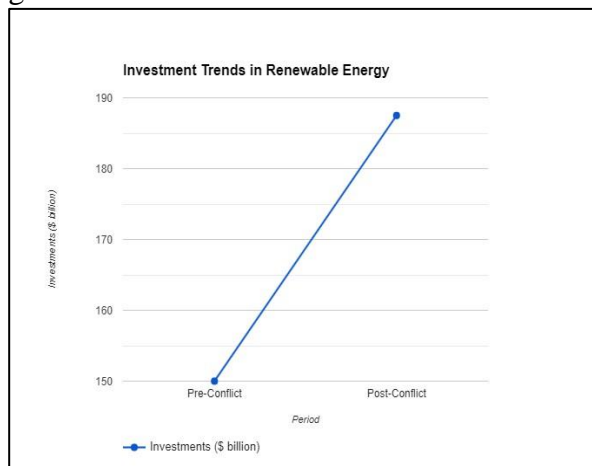
20%. Post-conflict, this commitment to sustainable energy is fortified with the introduction of key policy initiatives. The National Solar Mission, National Wind Mission, and Rooftop Solar Scheme stand as pillars of India's unwavering dedication to fostering renewable energy. These policy adjustments not only signify a response to immediate challenges but also embody a strategic vision for a sustainable future.

Figure 6: Regional Impacts on Natural Gas Trade



Source: IEA (2022), OIES (2022)

Figure 7: Investment Trends in Renewable Energy

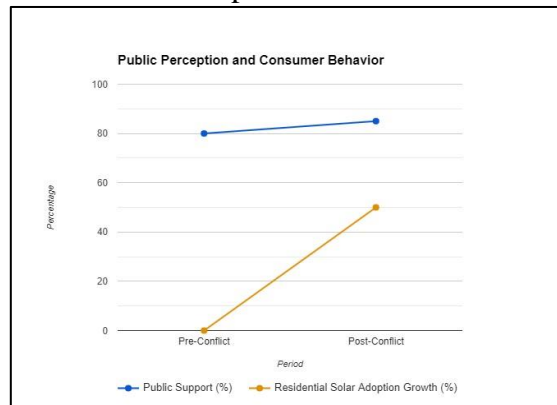


Source: IEA (2022), MNRE (2022)

The conflict, though rooted in geopolitical strife, has sown seeds of change in public perception and consumer behaviour within India. Pre-conflict, over 80% of Indians already supported the adoption of renewable energy. Post-conflict, this sentiment has translated into tangible action, with residential solar adoption surging by over 50% in the past year. This shift in behaviour is not merely a statistical anomaly but a reflection of a

broader societal awakening to the significance of sustainable energy practices. Figure 8 shows these trends.

Figure 8: Public Perception and Consumer Behaviour



Source: RBI (2022), World Bank (2022)

India, navigating the complexities of a global conflict, finds itself at the intersection of economic forces. The current inflation rate in India stands at 7.0%, a figure that encapsulates the economic challenges faced amidst geopolitical uncertainties. This inflationary pressure is not isolated but intertwined with global economic shifts triggered by the Russia-Ukraine conflict. Figure 9 shows trends in inflation rate.

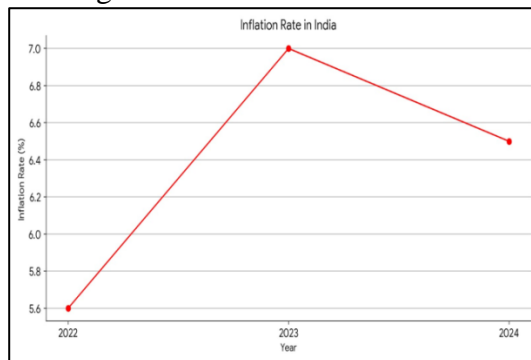
India's economic position reflects a delicate balancing act amid the shifting tides of global trade. Against the backdrop of the conflict, India's exports have experienced a notable 10% increase in the past year. This surge is indicative of India's adaptability and resilience in the face of changing trade dynamics. Simultaneously, imports have surged by 20%, underscoring the intricate nature of global economic interdependence. Figure 10 shows rise in exports of India, while Figure 11 shows rise in imports of India.

The linchpin of India's economic narrative lies in the projected GDP growth of 7.2% in 2023. This growth projection, amidst the turbulence of global conflicts, serves as a testament to India's intrinsic economic strength and resilience. It is not merely a statistical projection but a reflection of India's strategic positioning and its ability to navigate the economic headwinds generated by geopolitical uncertainties. Figure 12 shows these trends.

Prolonged tensions may prompt increased investment in renewable resources as nations seek to reduce dependence on geopolitically sensitive fossil fuels. Nations may reassess

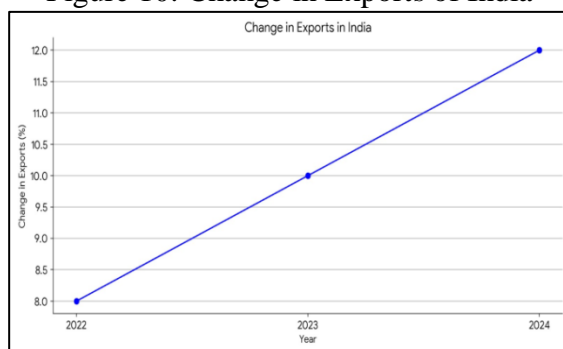
their energy trade patterns, diversifying suppliers and routes to enhance resilience in the face of ongoing geopolitical uncertainties. Industries adapt by intensifying research and development efforts, focusing on technologies that enhance energy security and resilience. Companies strategically shift their investment portfolios based on evolving geopolitical landscapes, anticipating and mitigating potential risks.

Figure 9: Inflation Rate in India



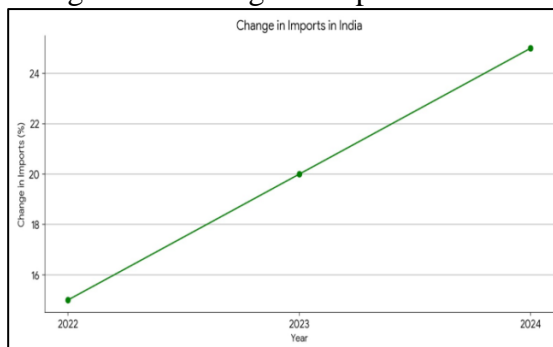
Source: RBI (2022), IMF (2022)

Figure 10: Change in Exports of India



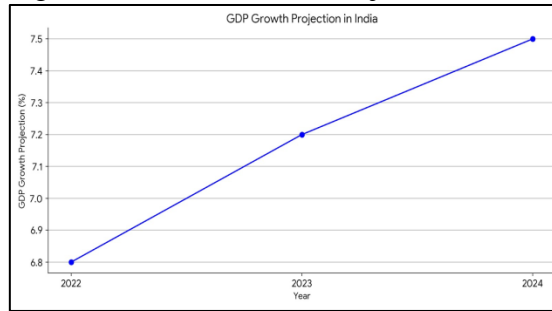
Source: World Bank (2022), India Budget (2023)

Figure 11: Change in Imports of India



Source: World Bank (2022), India Budget (2023)

Figure 12: GDP Growth Projection in India



Source: IMF (2023)

## 5. Policy Recommendations and Adaptations

Policymakers implement diversification policies to reduce vulnerability to supply disruptions in conflict-prone regions. Incentives are provided to encourage investments in a diverse range of energy sources, promoting a resilient energy portfolio. Policymakers engage in diplomatic efforts to foster international collaborations, creating a cooperative framework for ensuring stable energy supplies. Bilateral and multilateral agreements address shared energy security concerns, establishing a foundation for mutual support during geopolitical crises.

Policymakers prioritize research and development initiatives aimed at resilient energy technologies, including energy storage, grid optimization, and enhanced extraction methods. Incentive programs stimulate private sector investment in innovative solutions, fostering a culture of continuous adaptation to geopolitical uncertainties. Policies are continuously evaluated and adapted to align with the evolving nature of geopolitical challenges, ensuring a proactive and responsive approach. A holistic policy framework addresses not only immediate concerns but also anticipates future geopolitical shifts.

Energy producers share insights into the challenges of maintaining production levels during geopolitical conflicts, including potential disruptions to supply chains and infrastructure. Producers offer perspectives on how market dynamics influence their strategies, including pricing, exploration, and resource allocation. Distributors provide insights into the complexities of navigating energy transportation routes amid geopolitical uncertainties, addressing supply chain disruptions and logistical challenges. Logistic

experts discuss strategies employed to mitigate risks and ensure a consistent energy supply to end consumers.

Government officials and policymakers offer insights into the formulation and implementation of strategies for sustainable and stable energy sector. Perspectives on diplomatic efforts and collaborations with other nations provide a comprehensive view of how governments work collectively to address geopolitical challenges. The perspectives of various stakeholders within the energy sector highlight the interconnected roles each plays in shaping and responding to geopolitical uncertainties. Understanding these diverse viewpoints enables a more collaborative approach to address challenges and capitalize on opportunities.

In light of past disturbances The Gulf war and South China Sea conflicts and more recent Russia-Ukraine conflict where investors experienced heightened uncertainty, leading to increased volatility in global oil markets, there should be more emphasis on finding alternative routes for transportation of energy resources through better interconnectedness of different regions, strategically diversify their energy sources to reduce dependency on regions prone to geopolitical tensions and maintaining strategic reserves that acts as a buffer during supply disruptions, ensuring a continuous energy supply during geopolitical crises for better and smooth functioning of the economies.

Different nations adopt variations of these strategies based on their geopolitical context, resource endowments, and economic priorities. Fracking has extensively changed the extraction of oil and gas and has discovered original reserves that have reduced dependence on geopolitically sensitive regions. Ongoing advancements in extraction technologies enhance efficiency, making oil production more sustainable and resilient in the face of geopolitical uncertainties.

Rapid advancements in solar and wind technologies contribute to the growth of renewable energy, offering sustainable alternatives and mitigating the environmental and geopolitical risks associated with fossil fuels. Innovations in energy storage technologies have improved reliability of green energy sources, addressing intermittency challenges and enhancing grid stability. Smart grid technologies is equipped with real-time monitoring and optimises energy distribution.



The integration of these technological solutions forms a holistic approach to building a more resilient and adaptable energy infrastructure. Collaborative research and development efforts on a global scale contribute to a shared pool of technological innovations. Further, Successful diplomatic resolutions lead to stabilized energy markets, reducing uncertainty and restoring investor confidence. Nations may engage in diplomatic dialogues that reshape global energy trade dynamics, fostering cooperation and long-term stability.

## **6. Conclusion**

In navigating the complexities of the Russia-Ukraine conflict, our research transcends the realms of data analysis, venturing into the intricate narratives woven within economic shifts. From the volatility in oil and natural gas markets to the transformative implications for renewable energy, each facet unravels not only numerical adjustments but profound changes in economic paradigms. As nations navigate the post-conflict landscape, the key lies not just in understanding the data but in deciphering the narratives etched within each economic shift. The interplay between geopolitical events and economic landscapes is a dynamic symphony, and in this symphony, nations must find their unique notes of resilience, adaptability, and forward vision.

As the echoes of geopolitical tensions linger, our research underscores the imperative for nations to chart a course toward sustainable energy futures. The Indian model emerges as a beacon, not merely in numbers but in the strategic alignment of policies and public sentiment. The 20% increase in subsidies for solar and wind energy acts as a testament to the role of proactive policy initiatives in steering nations towards resilient and sustainable energy landscapes.

Beyond the corridors of power, our research illuminates the transformative potential embedded in societal perceptions and behaviours. The surge in residential solar adoption in India, propelled by over 80% public support, signifies a broader societal awakening to the imperative of sustainable energy practices. This awakening, encapsulated in numbers, speaks to the interconnectedness of geopolitical events and the collective consciousness of a society poised for energy transitions.

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## **A Bibliometric Analysis of Market Integration: Scope and Emerging Directions**

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### **Abstract**

*The purpose of this paper is to conduct a bibliometric review of the literature on market integration/ market co-movements/market spillover. This review is based on 1869 articles published in the time span 2010 to 2024 published in Scopus search engine post “Global Financial Crisis” period. The relevant articles were downloaded from the Scopus database using key terms, subject areas, period language and other filters. A comprehensive .csv file was downloaded for bibliometric study and data was analyzed with VOS viewer software version 1.6.20 and to find top authors, publications, titles, countries and keywords based on citations and develop a map for future researches in this field. This review paper highlights various perspectives on this globally relevant topic for better planning and decision-making.*

**Keywords:** Market Integration, Bibliometric Analysis, spillover

### **1. Introduction**

Financial stability is the prime motive of all the countries in the world to sustain the smooth monetary policies and elevated business operations. Financial plans, investment policies and trade regulations of a country are the key features to manage the financial sources diligently. Policy makers and analysts have to frame new regulations to mitigate the negative consequences. The constant growth of equity, gold, commodity, oil, energy

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and agricultural markets all over the world stimulated by several types of shocks and its impact spread across countries. For hypothetical discussion on economic integration, it is significant to understand the various dynamics of market integration and its interplay with economic development. Capital market integration establishes the scope of relationship between investors and financial instruments such as bonds and currencies. Capital flow on foreign and domestic trade transactions, investments, policies, political and social events, oil price variations, interest rates, exchange rate are the factors connecting equity markets at particular region and worldwide. This creates the increased mutuality among economies across the world and exhibits market efficiency, harmonization of prices and their profound reflections on the development of a country. The integrated stock markets create the impact of Unidirectional and bi-directional functions in the global economy. Li and Giles (2015) find in their study unidirectional shock spillovers between US and Japan and also with emerging markets. The co-movement behaviour of the Chinese market is identical to US market during and in the pre-Covid periods and it provides several small prospects to investors (Song et al., 2022). Also, they confirmed that asymmetric volatility spillover was existed between the US and Chinese markets. Kumar (2023) found presence of contagion effects in the face of Russia and Ukraine war and Covid-19 among the BRICS nations and he concludes low spillover effects between exchange and stock markets were identified within the country compared to the spillover effects occurred across countries. The dynamic role of market integration postulates demand to determine global macroeconomic drifts, prompting trade guidelines, and encouraging competition among multinational economies. As a consequence, investors can get profitable portfolio and companies reach higher financial status. Government tries to find new strategies to upgrade the economy of the country. Market integration persuades a single large market for the entire world to find more business opportunities with mass consumers and variety of products. Commodity market integration encompasses measuring the consumption of food stuffs, clothing, medicinal and wellbeing products and communication. Commodity markets are interwoven with high risk and trading opportunities for tangible goods. Investors have to understand the trade strategies for better portfolio ideas. Designing a suitable mechanism of free movement of labour and to procure reasonable distribution of labour resources in a specific region denotes labour market integration. Labour is an important element of factor of production and the system of wage payment, skill of a worker, per capita

income are the basic structures in labour markets. In the case of agricultural market integration, Sekhar (2012) finds no integration between national and regions due to government trade restrictions. He suggested that Indian agriculture markets benefitted effectively when new policies are exposed on it. On the whole market integration takes a key role in managing financial resources and deliberations. Due to the growing importance of market integration, a large amount of research has been carried on globally in different perspectives like equity market integration, co- movement of stock prices, spillover effects and interconnectedness. On this concept, this paper aims to review the past and present status of researches and understand the valid comments, suggestions and recommendations presented by studies. This study attempts to visualise the span and deepness of research on market integration through bibliometric analysis. The remaining part of this review article is designed as follows. Section 2 represents the detailed review procedure used to formulate this paper, Section 3 describes the data sources and research methodology adopted, Section 4 discusses the results and Section 5 has the concluding remarks.

## **2. Literature Review**

The existing studies on ‘market integration’ have examined several research questions related to the integration between and within different markets (such as financial markets, commodity markets etc) of economies. On the basis of the literature review of 380 articles from the 1980s to 2024, Haddad (2023) identified six key research themes in this area as “market segmentation, portfolio diversification, market integration evidence from emerging and developed economies, spillovers and linkages, economic market integration and financial market integration and volatility”. In this section, we present a brief review of these studies across the different research themes.

Ever since the global financial crisis hit the world economy in 2007-09, followed by the Eurozone crisis in 2010, COVID-19 in 2020, and the Russia-Ukraine war in 2022, a plethora of research studies have flourished to examine financial market integration through a global lens, particularly focusing on the markets of specific regions like ASEAN, the European Area, Latin America, developing economies, emerging

economies, developed economies. Izaguirre, Shin, and Zirek (2024) found increased financial market integration between Latin American and United States (U.S.) financial markets following free trade agreements between the countries. A study by Kaya and Demirel (2024) revealed increased connection between financial market integration and inflation during the crisis period in the Euro area. Another study by Hajilee, Niroomand, and Hayes (2024) using a sample of eight countries found financial depth as an important determinant of the international financial market integration.

In particular, many recent empirical studies have examined the advances in financial market integration literature, viz. ‘spillovers’ in returns and volatility of market prices and ‘contagion’. Alomari et al. (2024) revealed significant spillovers in higher order moments, viz. volatility, skewness and kurtosis between the ten U.S. Exchange Traded Funds Markets and uncertainty factor volatilities, particularly during the turmoil periods. Fountas, Kontana, and Tzika (2024) found a significant increase in the financial market returns spillovers and economic policy uncertainty spillovers in the three continents, Europe, America and Asia during the three crisis periods, viz., the global financial crisis, European sovereign crisis, and the recent pandemic. Balli et al. (2021) found uncertainties in U.S. as an important variable explaining spillover from U.S. to global stock markets. Mateus, Bagirov, and Mateus (2024) revealed an increase in the returns and volatility spillovers between the stock markets of East and Southeast Asian markets during the crisis periods and subsequent return to the pre-crisis levels during the stable periods. Akunga, Ahmad, and Coleman (2023) revealed absence of contagion in sub-Saharan African markets from crisis in U.S. and United Kingdom (U.K.) markets. The study also found presence of contagion in these markets from crisis in China, South Africa and Kenya. Hadhri (2023) found that economic policy uncertainty plays a significant role in intensifying spillover effects among regional European markets. The study found increased interconnection between Asia Pacific and Latin American markets and the U.S. market during high U.S. and global uncertainty periods. However, the study “fails to find higher unconditional correlation of returns among U.S. and the regions during the same period of time”.

Several empirical studies on financial integration utilized ‘Capital Asset Pricing Model (CAPM)’ theory of finance as the theoretical model. Hadhri (2023) studied the significance of economic policy vagueness using the multifactor asset pricing model on

the data about 31 equity markets and increasing spillover effects found by him among regional European markets due to the impact of ambiguity of economic policy. There was an evidence for an increased interdependency between used Asia Pacific and Latin American markets. Using a sample of Association of South East Asian Nations, China, Korea and Japan Guesmi, Kaabia, and Abid (2017) applied Capital Asset Pricing Model (ICAPM) to discover major bases of time-varying risks and investigated the factors which are influenced the integration process of equity markets worldwide. It was concluded that regional trade openness, regional and world industrial production, dividend yields and commodity prices are among the key determinants of regional integration in the ASEAN markets. Further, financial integration has implications for portfolio diversification across different national and international markets. Thus, researchers (Siddiqui and Kaur, 2023; Warne and Suman, 2023; Aurora and Kumar, 2022; Chen and Chiang, 2022; N. Patel and Patel, 2022; R. Patel, 2021; Saji, 2021; Pardal et al., 2020)) examine the financial integration between economies having similar or different structural characteristics so that investors can make informed portfolio decisions. Migliavacca, Goodell, and Paltrinieri (2023) performed a meta-literature review on 242 articles published between 1974 and 2022 on 'portfolio diversification', identifying the major research themes and prospects of future research in this area.

Globalization is a progressive process that is affected by many national and international disruptions and it in turn, also affects the functioning of the markets in several ways. Subsequently, the trends in economic integration, the impact of economic integration and the effects of certain events on economic integration between groups of markets have gained interest among researchers. Bastidon et al., (2023) analyzed the trends in local and global stock market integration over the past 120 years. They find that while the local stock market integration shows an increasing trend over the entire sample period, global stock market integration follows the U-shaped pattern. A study by Gopane (2023) found that the regional economic integration between the BRICS (Brazil, Russia, India, China and South Africa) economies causes an increase in the stock market integration. The study found that "this positive relationship is especially discovered during the periods of surplus trade, and more interestingly, was initiated three years after BRICS existence and continues to grow at an increasing rate". Zahid and Simga-Mugan (2024) found insignificant effect of International Financial Reporting Standards (IFRS) on capital

market integration. Another study by Sun, Tan, and Hou (2019) revealed that a higher degree of market rivalry among Chinese exporters makes them unresponsive to exchange rate fluctuations indicating a higher degree of exchange rate pass through. Further, the 'law of one price' has been used as the theoretical model in several empirical studies on market integration. Applying the law of one price model, Goodwin, Holt, and Prestemon (2021) found in their study that competently related regional markets for lumber and plywood product are significantly linked to unity and limited market shocks induce equilibrating adjustments in regional markets.

Existing empirical studies on market integration have utilized several econometric techniques to analyse the short run and long run relationships between different markets. The econometric techniques used by the researchers can further be classified into time series and panel data techniques. Time series techniques consist of cointegration, vector autoregression, vector error correction model (VECM), Autoregressive distributed Lag (ARDL) model, univariate and multivariate Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models, and wavelet analysis, among others. Further, some researchers have used panel data econometric techniques like panel cointegration and panel ARDL to analyze the market integration among different countries.

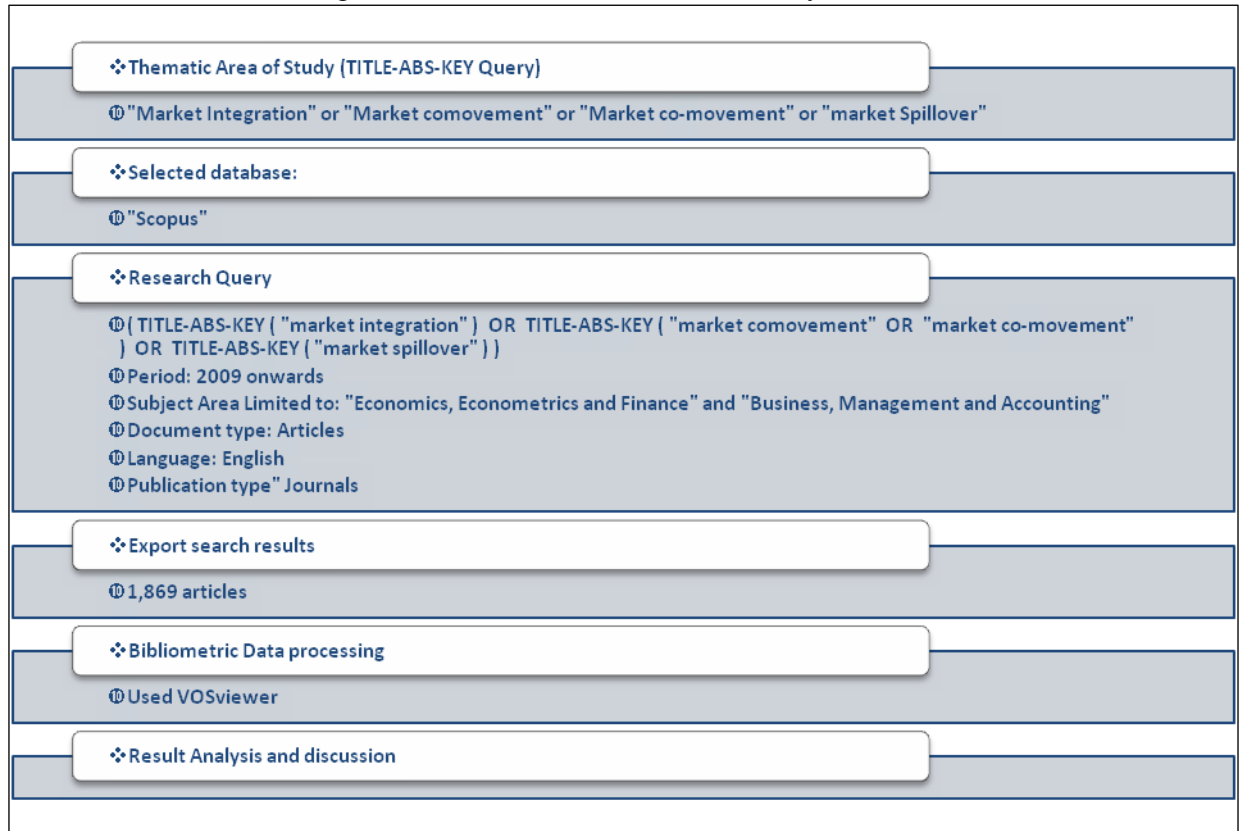
### **3. Research Methodology**

For the purpose of conducting bibliometric study on the topic “market spillover / market co-movement / market integration”, all the relevant articles were downloaded from the Scopus database with a query string ((TITLE-ABS-KEY ("market integration") OR TITLE-ABS-KEY ("market comovement" OR "market co-movement") OR TITLE-ABS-KEY ("market spillover")) AND PUBYEAR > 2009 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA, "ECON") OR LIMIT-TO (SUBJAREA, "BUSI")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SRCTYPE, "j))). The .csv file was downloaded on 17 June 2024 and it was found that there are 1869 articles on this topic. It is noteworthy that these articles were published in Scopus post “Global Financial Crisis” period, i.e., during January 2010 –



June 2024. This file contained all the bibliometric information regarding these articles, viz. Journal name, funding details, keywords, authors etc.

Figure 1: Process of Bibliometric Analysis



Source: Authors' elaboration

#### 4. Empirical Results

When we consider the importance of market integration in the perspective of global economy, the number of researches and its inferences carried out on this area should be taken in to account. Accordingly, Scopus search engine provides the data of 1869 papers that have been published in 606 journals, by 3895 authors from 121 countries on market integration and its sub themes.

Table 1: Consolidated Summary of data on market integration research

<b>Data</b>	<b>Market Integration Research</b>
Number of articles	1,869
Number of journals	606
Number of authors	3,895
Number of countries	121
Number of citations	29,501

Source: Authors' elaboration

#### 4.1 Titles of Top Cited Articles

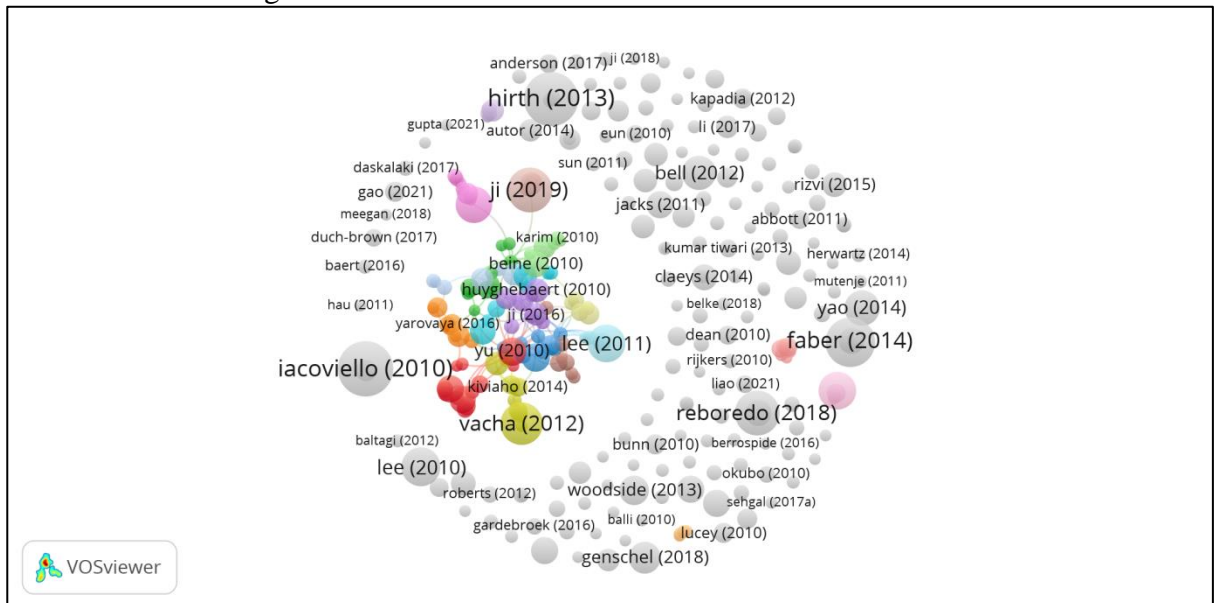
Table 2 provides the slab of citations accredited for the papers published on different titles by different authors. In the top ten cited documents cover the content of spillovers, trade integration, co-movement and interlinkages. It is an evident that researchers are interested on these emerging themes to expand the knowledge on market integration concept. The growth of research studies on this area can be described by the network visualisation of most cited authors. This is shown in Figure 2. Figure 2 shows the top ten cited documents and authors. Iacoviello and Neri (2010) has published his paper on "Housing Market Spillovers: Evidence from an Estimated DSGE Model" in the year 2010. This document has been cited 568 times. Hirth (2013) placed in second with 558 citations for his research on "The market value of variable renewables: The effect of solar wind power variability on their relative price". Faber (2014)'s article cited by 463 times in 3rd position. Network visualisation shows variations in citation by its size. Accordingly, the citations score between 300-400 times represent the documents of (Reboredo 2018; Ji et al. 2019; Vacha and Barunik 2012) holds the 4th, 5th and 6th places respectively. Further, small size bulge indicates the authors who have citations less than 300 times for their research publications on market integration.

Table 2: Most cited publications on “Market Integration”

Documents	Title	Citations
Iacoviello (2010)	Housing Market Spillovers: Evidence from an Estimated DSGE Model	568
Hirth (2013)	The market value of variable renewables: The effect of solar wind power variability on their relative price	558
Faber (2014)	Trade Integration, Market Size, and Industrialization: Evidence from China's National Trunk Highway System	463
Reboredo (2018)	Green bond and financial markets: Co-movement, diversification and price spillover effects	377
Ji (2019)	Dynamic connectedness and integration in cryptocurrency markets	369
Vacha (2012)	Co-movement of energy commodities revisited: Evidence from wavelet coherence analysis	332
Lee (2010b)	Some recent developments in spatial panel data models	290
Jia (2021)	High-speed rail and CO2 emissions in urban China: A spatial difference-in-differences approach	272
Lee (2011)	The world price of liquidity risk	264
Chesney (2011)	The impact of terrorism on financial markets: An empirical study	247

Source: Authors’ own elaboration

Figure 2: Network Visualisation of most cited authors



Source: Authors’ own illustration

## 4.2 Top Authors based on Citations

From Table 3 we can draw the opinion that Asche, Frank has been the highest cited author with 5 publications and each document has been cited averagely 62.8 times. Dewandaru, Ginanjar published the same number of articles and cited by 229 times. His papers have average citations of 45.80 times holding second place in the list of most cited authors. On the other hand, Guesmi, Khaled have got 213 citations and published highest number of 17 articles on divergent topics of market integration. Balli and Faruk authors have 9 publications and 192 citations. Interestingly, we can note that Federico, Giovanni, Nguyen, Duc Khuong, Batten, Jonathan A. published 5 papers and the number of citations lying between 163 and 172. In the same manner, Gupta, Rangan, Shi, Xunpeng, Abid, Ilyes have published 6 papers with the citations of 153 times, 139 and 131 times respectively.

Table 3: Most cited authors along with documents on “Market Integration”

Author	Documents	Citations	Average citations per document
Asche, Frank	5	314	62.8
Dewandaru, Ginanjar	5	229	45.8
Guesmi, Khaled	17	213	12.53
Balli, Faruk	9	192	21.33
Federico, Giovanni	5	172	34.4
Nguyen, Duc Khuong	5	165	33
Batten, Jonathan A.	5	163	32.6
Gupta, Rangan	6	153	25.5
Shi, Xunpeng	6	139	23.17
Abid, Ilyes	6	131	21.83

Source: Authors' own elaboration

## 4.3 Most Published Countries in Research on Market Integration

Table 4 shows the data relating to top fifteen countries that have written the maximum number of articles, citations received and their average citations per document. U.S.A. has the highest count of 315 articles with 7310 citations. Germany placed second in the list with 214 articles and 4115 citations, and it has average citations 19.23 times. China occupied 3rd position with 3694 citations for 218 papers and each paper has average

citation of 16.94 times. Other countries have also shared their research effort on this area. From the table we can understand that developed countries like UK, France, Italy and Australia have published a good number of papers with the citations of 3556, 2028, 1907 and 1870 respectively. Spain, Sweden, Netherlands and Canada have produced less than 100 articles and average citation per document score is around 20 times except Canada. It has 905 citations and placed 12th place in the list with 69 papers. India has produced 110 documents on market integration with 1066 citations, holds 11th position in the list of top 15 countries. Articles contributed by Switzerland, Finland and Malaysia have been cited by 901, 770 and 768 times, respectively.

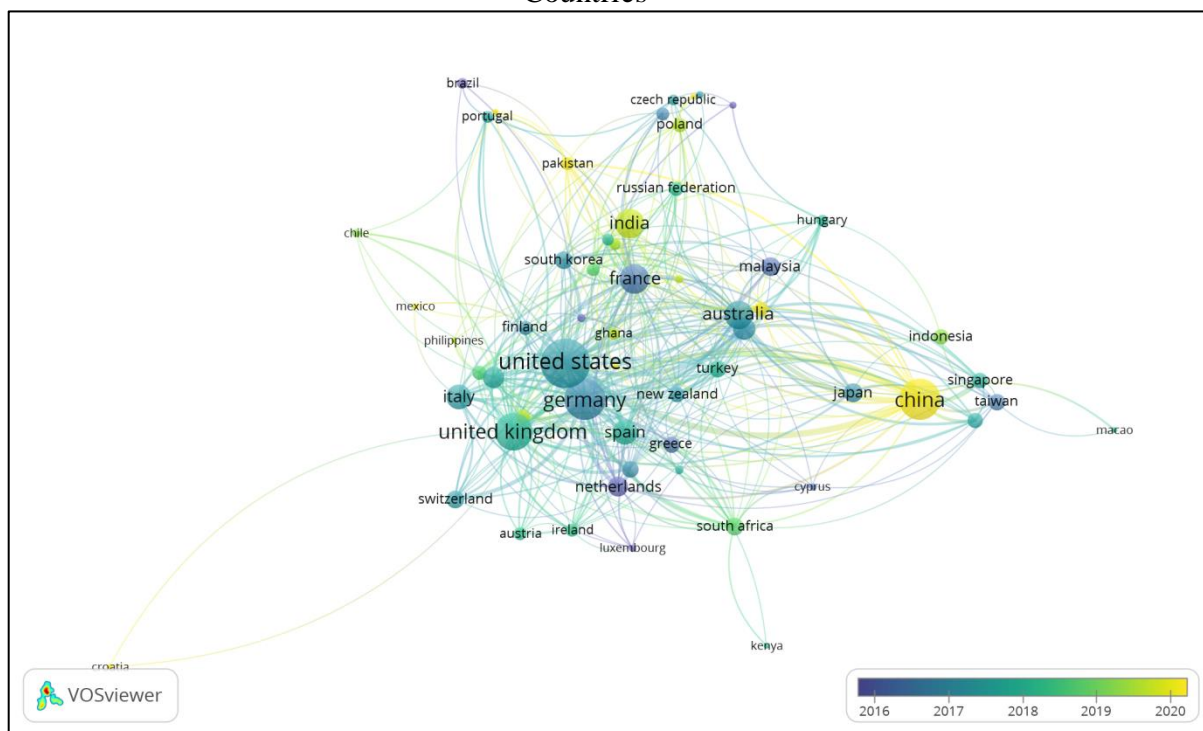
Table 4: Most cited countries on “Market Integration”

Country	Documents	Citations	Average citations per document
United States	315	7310	23.21
Germany	214	4115	19.23
China	218	3694	16.94
United Kingdom	188	3556	18.91
France	117	2028	17.33
Italy	78	1907	24.45
Australia	105	1870	17.81
Spain	79	1585	20.06
Sweden	57	1147	20.12
Netherlands	54	1089	20.17
India	110	1066	9.69
Canada	69	905	13.12
Switzerland	43	901	20.95
Finland	28	770	27.5
Malaysia	47	768	16.34

Source: Authors' own elaboration

Figure 3 showcases cooperation among 15 major countries that have produced several papers in market integration research. The colours and size of overlay visualisation specify the development of research over the years. The blue bunches and their sizes indicate that United States, United Kingdom, Australia, France, and Germany are the foremost participants of this theme from the year 2016 to 2018. Recent progress in China, India, and Pakistan could be known from the size of the yellow and green clusters.

Figure 3: Overlay Visualisation Network of cooperation based on Authorship between Countries



Source: Authors' own illustration

#### 4.4 Top publications based on citations

The top fifteen publication titles cited in the arena of market integration research are presented in Table 5. The impression made by these publication titles is apparent by the statistic that they have jointly contributed 20.81% (389/1869) of literature from the year 2010 to 2024 and they have been cited 12537 times or 42.50% of total 29501 citations on this subject. Above table displayed the top three journals namely Energy Economics, Journal of Banking and Finance, and Economic Modelling collectively published 131 papers. All top 15 journals are basically specialising in the fields of economics, finance and business, published articles on market and economic integration, price dynamics, stock market and financial crisis. Figure 4 displays the network portrait of journals with articles which have highest citations. From the time frame scale, we could clearly understand that periodicals coloured in purple such as Economic Modelling, Economic Letters, Economic Systems, Empirical Economics, Journal of International Money, and

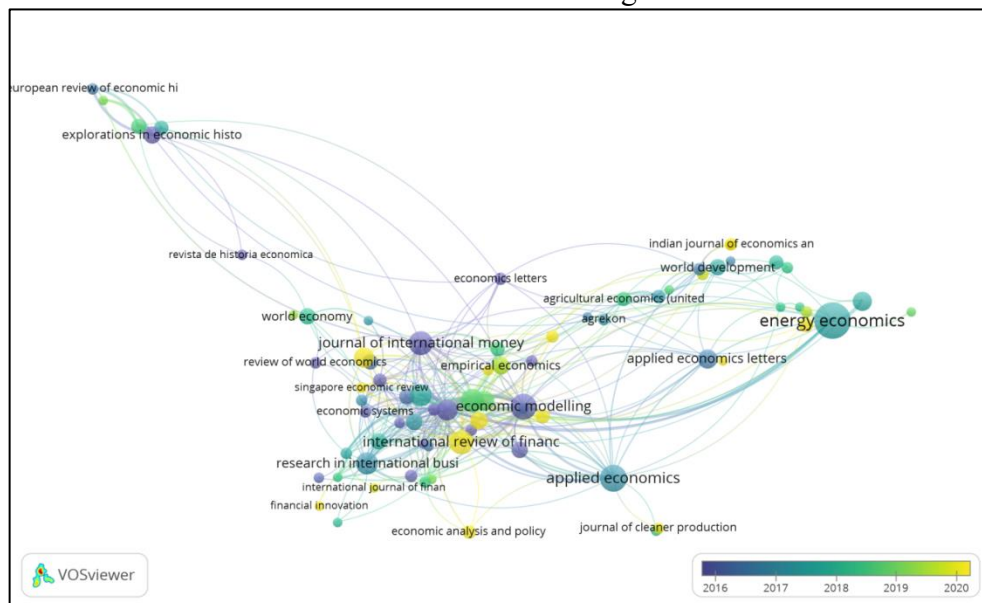
others have published top most cited research papers during 2016. For the period 2017-2019 European Review of Economics, Explorations in Economic History, Revista De Historia Economica, Applied Economics, Research in International Business etc., have collaboration in publishing highly cited articles on market integration. Current status has been depicted by journals highlighted in yellow colour in the figure. Energy Economics, Indian Journal of Economics, Review of World Economics etc have produced top cited papers on market integration and connection with other renowned journals.

Table 5: Top publications with highest cited researches on “Market Integration”

Source	Documents	Citations	Publisher	CiteScore 2023 (Scopus)*
Energy Economics	71	3253	Elsevier	18.6
Journal of Banking and Finance	25	1566	Elsevier	6.4
Economic Modelling	35	1070	Elsevier	8
Journal of Financial Economics	9	923	Elsevier	15.8
International Review of Financial Analysis	31	896	Elsevier	10.3
International Review of Economics and Finance	28	765	Elsevier	7.3
Research in International Business and Finance	26	650	Elsevier	11.2
Journal of International Money and Finance	32	595	Elsevier	4.2
North American Journal of Economics and Finance	23	515	Elsevier	7.3
Applied Economics	39	406	Taylor & Francis	3.8
Explorations in Economic History	16	396	Elsevier	2.5
Finance Research Letters	22	384	Elsevier	11.1
Journal of Common Market Studies	15	383	John Wiley & Sons	5.3
Emerging Markets Review	10	370	Elsevier	7.1
Economic Systems	7	365	Elsevier	4.9

Source: Authors’ own elaboration. \*accessed from Scopus website (calculated on 05<sup>th</sup> May 2024)

Figure 4: Overlay Visualisation Network based on top journals with highest cited researches on “Market Integration”



Source: Authors’ own illustration

#### 4.5 Co-occurrence Analysis based on Author's Keywords

Table 6 presents the occurrences of different keywords used in the market integration-oriented studies. The pattern of market integration studies carried out could be drawn by the analysis of the keywords used by the authors and the number of incidences.

Table 6: Top keywords with highest occurrences on “Market Integration”

Keyword	Occurrences	Total Link Strength
Market Integration	403	1549
Economic Integration	146	926
Integration	100	530
Price Dynamics	100	853
Stock Market	90	601
Commerce	88	900
China	84	512
Stock Market Integration	74	160
Energy Market	69	736
Europe	65	464
European Union	64	369
Financial Market	64	509
Costs	61	688
Cointegration	60	239
Financial Crisis	60	276
Market Integration	403	1549
Economic Integration	146	926
Integration	100	530
Price Dynamics	100	853
Stock Market	90	601

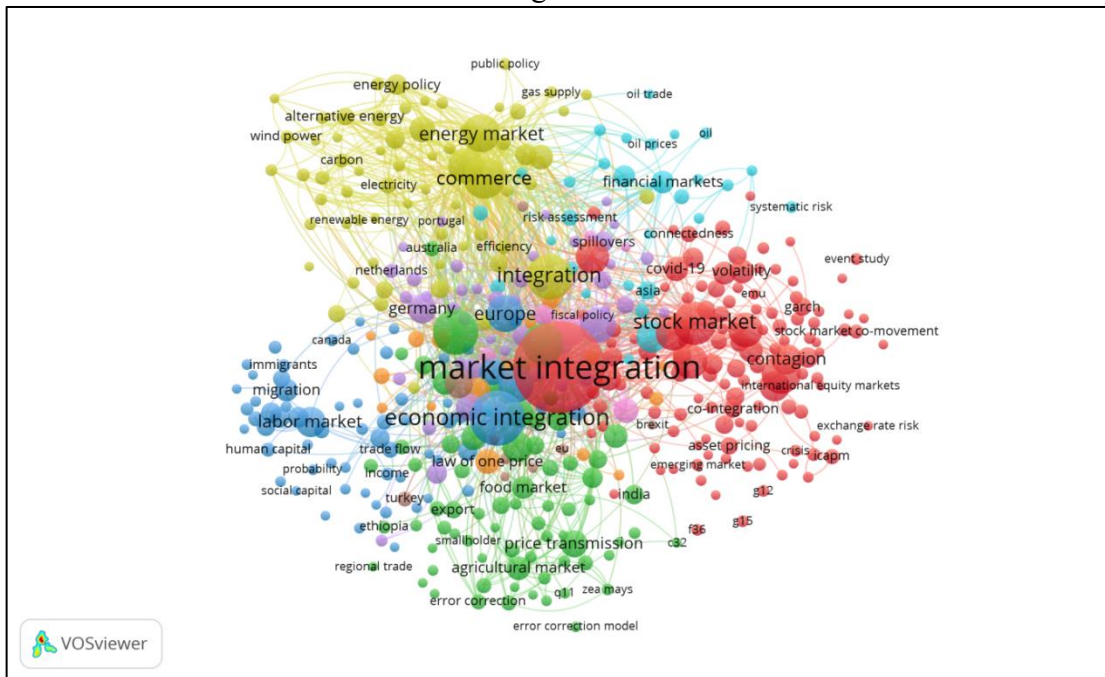
Source: Authors' own elaboration

Network visualisation Figure 5 displays the highest occurrences of keywords in different colours. From Figure 5, it is possible to identify the concepts in which research has been carried out with the co-occurrences of key terms. Hence, “Market Integration” is the top most keyword shown in red colour and used 403 times in research studies associated to stock market, spillovers, volatility, co-movement, connectedness, crises, event study, international equity markets etc. Another key word “Economic Integration” has been highlighted in blue colour and related to the themes like labour market, trade flow, human



capital, income, and social capital. The picture provides the information that the keyword “economic integration” has been widely used in the researches carried out in Canada, Europe and Ethiopia. The term “Energy market” is also a popular keyword identified in the documents produced by Australian, Netherlands and Portugal. The word “energy market” has occurred in the emerging concepts like energy policy, alternative energy, public policy, carbon, electricity, renewable energy etc denoted in yellow shade in the figure. Price transmission, error correction model, and agricultural market, food market terms are visible in green shade and used by Indian authors.

Figure 5: Network Visualisation based on top keywords used in researches on “Market Integration”



Source: Authors' own illustration

## 5. Conclusion

The purpose of the study is to illustrate the bibliometric analysis of the research done in the area of ‘market integration’ post global financial crisis period. As discussed in the previous sections, market integration has emerged as a prominent area of research over a period of time. As several global shocks have hit the world economy in the past decade, researchers have explored various related advances of market integration such as

contagion, spillovers or inter-connectedness between the markets. The data of research studies on ‘market integration’ retrieved from ‘Scopus’ shows that the publications in this area has been varied in terms of the objectives of research, countries/regional groups considered, nature of markets considered and the econometric technique utilized in the analysis. Researchers have analysed the trends in market integration, impact of market integration, effect of several global shocks on market integration/contagion, and the effect of some policy change on market integration. While some research studies on ‘market integration’ literature are based on the theory of the ‘Law of one price’, there are some studies in this area which utilize the ‘CAPM’ model of finance. The different econometric techniques used by the studies include the time series techniques such as cointegration, multivariate GARCH models, and wavelet analysis, and panel data techniques such as panel cointegration. Analysis of documents in different angles such as top cited articles, cited authors along with documents, most cited countries and network of cooperation of authorship between countries, top publications with highest cited researches and key words co-occurrences, it can be concluded that market integration area has significant positive affiliation with the subjects parts of finance, economics and international business researches universally and expands its benefits in multiple ways. This study indicates a considerable scope for future research on the multiple dimensions of market integration, such as financial and economic integration of G20 countries, impact of the Russia-Ukraine war on market integration of developing and developed countries, use of panel data econometric techniques etc., Our study also highlights the emerging journals that widely publish articles in this area that can be helpful for the future researchers. However, this study can be further extended to include the articles published in the other databases that may help in making more inferences related to research on ‘market integration’.

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**Book Review - The Shortest History of Economics**

**Author: Andrew Leigh**

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Mathematics and History are the two pathways of doing economics. The former is fashionable and dominant, and the latter, looked down upon and “openly disparaged as type of antiquarianism.” So, should we read history of economics in general, and Leigh (2024) in particular?

Mark Blaug (1927-2011), to whom this book review is dedicated, had blossomed as a ‘rebel with many causes’ despite his baptism into economics rooted in mainstream/neoclassical economics. He had exhibited independence of thought, and intellectual honesty par excellence, and surely did not belong to the gang of economists notorious ‘as at best as cost-cutters and at worst as fascist swine’. Famous, inter alia, for his *Economic Theory in Retrospect* like the great Schumpeter’s *History of Economic Analysis*, he had, in a paper (Blaug, 2001), deliberated on the reality of the virtual disappearance of history of economic thought from university curricula on the one hand and on the other, the reality of more and more scholars attending scholarly meetings in history of economic thought and publishing articles about the history of economic thought. A few of his perceptions drawing us to history of economic thought are as follows: “No idea or theory in economics, physics, chemistry, biology, philosophy and

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even mathematics is ever thoroughly understood except as the end-product of a slice of history, the result of some previous intellectual development... Economic knowledge is path-dependent. What we now know about the economic system is not something we have just discovered, but it is the sum of all discoveries, insights and false starts in the past...If you are mathematically inclined, you will find physics, engineering and modern economics congenial to study. If you are philosophically inclined and intellectual rather than a technocrat but are attracted to economics because of its policy relevance or the belief that society rests essentially on economic foundations, you may well find yourself drifting towards history of economic thought as one of your specializations in economics. Because papers in history of economic thought rarely contain much mathematics or econometrics, some students may persuade themselves that it is a soft option. Actually, history of economic thought is in many ways more difficult, more subtle, and less capable of being cloned on a master mould than standard mainstream economics. Be that as it may, it is a striking fact that conferences in history of economic thought attract Austrians, Marxists, Radical political economists, Sraffians, institutionalists and post-Keynesians in disproportionate numbers, all non-neoclassicals or even anti-neoclassicals who have no place else to go to talk to scholars outside their own narrow intellectual circles. In other words, history of economic thought is a haven for heterodoxy, a heterodoxy which no doubt has many sources but at its foundation takes its departure, I suspect, from a certain type of mind, a certain congenial style of thinking.”

In light of this, you can easily find more than a hundred books on the history of economics/economic thought and/or political economy. Leigh (2024) is the latest one. If this is the shortest, then Schumpeter’s must be the longest.

To begin with, Leigh hopes that “you grow up in a society in which good economic policy internalises the externalities, the market gives you choices aplenty, and economics provides dazzling insights on our remarkable world.” That is a tall order easing out for you. And he advises you that “When making a tricky decision, weigh the costs and benefits. Consider the opportunity costs—what are you giving up? Think of the margin—asking whether one more of something is worth having. And don’t forget externalities—the positive and negative impacts of your decisions on other people. From education to entrepreneurship, from socialising to the share market, economics can help you live a better life.” Leigh’s wish and counselling, thus, constitute a nice, optimistic and



customised gospel to an introductory economics student who might be perplexed about the blackboard micro and macroeconomics he is taught over two semesters. And little wonder that this evangelism is buttressed by the 2023 economics Nobel laureate Claudia Goldin of Harvard University: “If you read just one book about economics, make it this one.” The message is surely that you can and should feel upbeat about doing mainstream economics, a message contrary to Blaug’s take above on history of economics as predominantly a heterodox quest.

The central point of Leigh is that capitalism can be trusted; and that mainstream economics can mend the downside of capitalism. This is very much unlike the radical critique of capitalism and its economics as sheer ideology by Dowd (2004), which the mainstream economists and politicians do not tell students to read. However, open-minded students should read both Leigh and Dowd with equal interest in order to critically understand how diverse future possibilities of ‘good society’ and ‘good life’ are dependent on the present and its past.

Leigh is on a song about capitalism and prosperity due to it--people maximising their wellbeing (living standards) in the face of scarcity--as grasped by the functioning of markets according to the principles of economics in terms of incentives; specialisation and trade; and big events driven by new technologies and changing policies. And yet, the market system is far from perfect. Unemployment, cartels, traffic congestion, overfishing and pollution are just a few of the problems that emerge when markets fail. So, much of economics is now focussed on questions of market failure by way of competition policy, climate policy, employment policy, taxation policy etc. even as by behavioural economics which is now becoming a standard part of the curriculum, it is acknowledging that humans do not always behave like cool, calculating happiness-maximising machines. The rise of artificial intelligence and rise in inequality (including gender inequality) are major causes for economic concern now. Another key frustration is that, nearly a century after the Great Depression, economists have failed to tame the boom-and-bust cycle. Capitalism, thus, although great, does not guarantee the wellbeing of those who lack capital! But there is no need to be cynical. Economics is evolving to give practical advice for all aspects of life through forensic economics (uncovering evidence of hidden behaviour in a variety of domains), analysis of large datasets and its discussions of the role of government as a risk manager and promoter of socially useful innovation.

Moreover, there are interesting things in store for us: “Market designers have pioneered the matching algorithms that underpin many kidney donations. Auction experts have devised auctions that raise billions of dollars for government from the sale of electromagnetic spectrum rights. Development economists have run randomised trials that save lives and raises incomes.”

Leigh, thus, comes to the conclusion that economics does offer the biggest contribution in helping us to live a better life within the orbit of tinkered and mended capitalism. This is diametrically opposite to the conclusion of Dowd (2004) and the like radical economists (e.g. Smith, 2016) that capitalism is the definitive “road to hell”, so to say (a la Chris Rea’s blues-rock song), not only for the working class but also for all humanity.

In between Leigh’s optimism and Dowd’s pessimism about capitalism and its economics, note that Komlos (2023) discusses how studying economics and economic policy need not be a waste of time. And this is what one must study, both theoretically and empirically, to figure out the possibility of “capitalism with a human face”. And in coming to terms with economics as the study of market failures, Leigh’s modified orthodoxy is surely shallow in relation to Komlos’ tempered heterodoxy. This is worth exploring on empirical footing.

This is not all. Belonging to the Australian Labour Party, Leigh has acknowledged how in the post-war era, trade unions campaigned for higher wages, safer working conditions and anti-discrimination laws and how redistribution from the lucky to the unlucky occurred through both the welfare system and the tax system. However, he has avoided what needs to be done to much of humanity as working people in the face of neoliberalism’s onslaught on them in the past four decades. This reflects how Labour Parties worldwide have sold themselves out to pro-capital policies without genuine concern for labouring people’s tribulations. There is no economic policy making that works for all or the majority under capitalism. Leigh has not honestly dealt with this problematic.

All in all, Leigh’s short book about historical emergence of markets and prevalence of markets everywhere now can no doubt be read in a day. Its many black and white pictures and figures in 13 chapters, its recognition of the work of Elinor Ostrom, Sadie Alexander and Claudia Goldin and the need for good governance to avoid famines and overcome

pandemics, and the call for better collection of economic statistics, can all be appreciated. But the book cannot be remembered for a lifetime unlike the historically rooted cogent case for social liberal economics as the most sensible economics made by Hodgson (2021) or Standing (2016).

To conclude, Leigh's book can be taken at best as a light historically sojourned introduction to *Core Econ* as the new mainstream economics, which is "certainly more engaging than standard courses and puts economic history back into economics teaching. However, it determinedly and transparently sticks to teaching economics as if there was only one approach to analysing economic phenomena. It does not support critical reflection based on an understanding that there is more than one way of thinking about the economy and they don't give the same answers to policy questions."

Economics students can broaden their horizons on the basis of small books with big stories like this.

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6. All figures and tables should be embedded within the text. They should be labeled properly along with the source. Equations should be numbered.
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