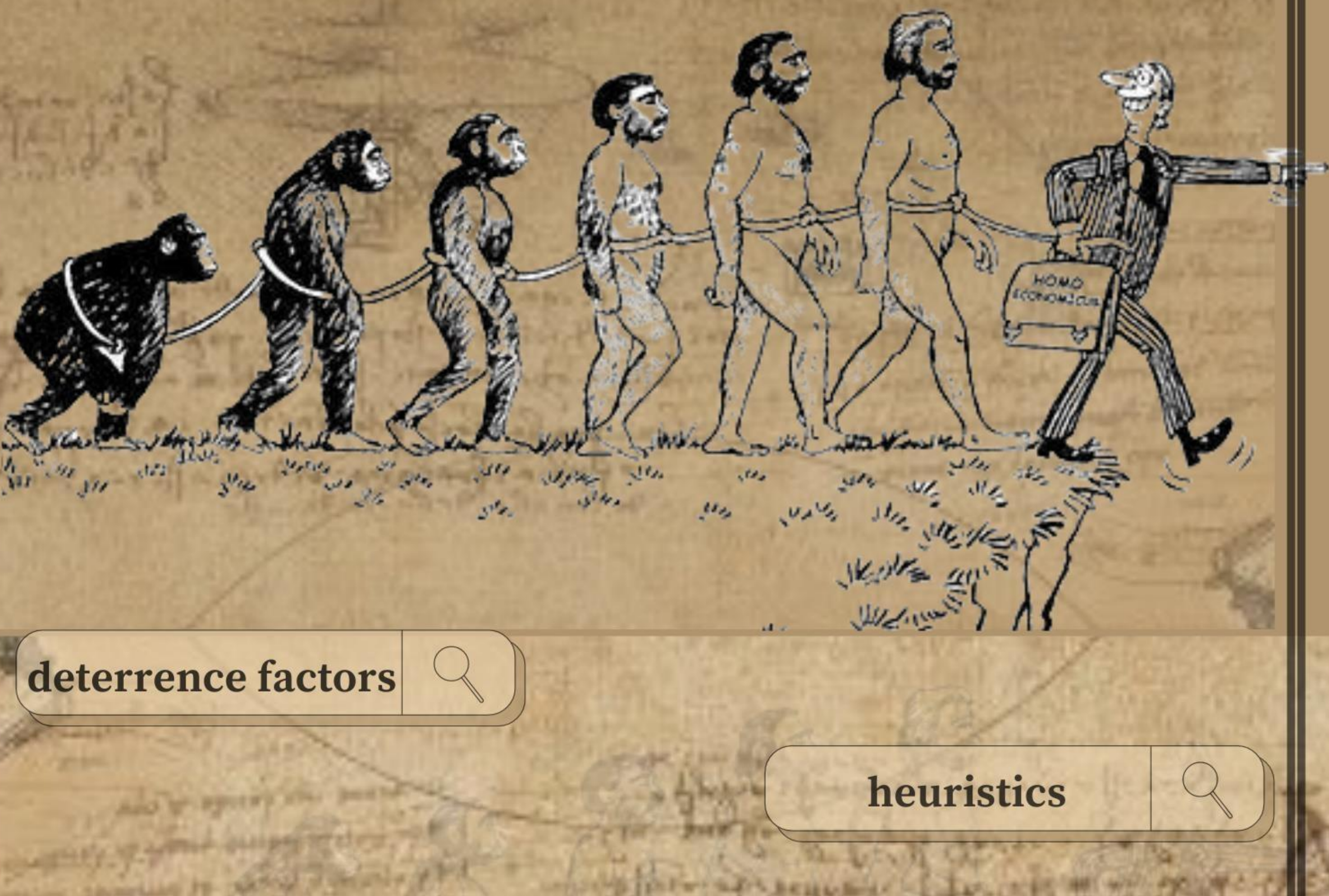
आpoorti

THE ANNUAL ECONOMICS JOURNAL OF MIRANDA HOUSE



deterrence factors

heuristics

prospect theory

sunk- cost fallacy

INDEX

CONTENT

ACKNOWLEDGEMENT

As we present our journal, we would like to acknowledge that Aapoorti materializes from the contribution of many people.

We would like to thank our Faculty Advisor, Dr. Sutapa Das, and our Teacher-in-Charge, Dr. Sunita Meena, for their unrelenting guidance. Their support, alongside that of several professors whom we turned to time and again for their helpful direction, is invaluable.

We also thank the Arthashastra team, especially Sampada Jain and Avni Ajay, Arthashastra's President and Vice President for their unwavering support and the Marketing Team for pulling all the stops when it comes to promoting our work.

Additionally, we would like to extend our gratitude to our interviewees, Prof. Prabhat Patnaik and Prof. Bhaskar Dutta, for their time and support, and our guest contributors for this edition of Aapoorti. We would especially like to thank Dr. Annavajhula J. C. Bose who has been a constant source of support and ideas throughout the years, and remains a source of encouragement for us. We also thank our readers and friends for their enthusiastic support and hope that they find Aapoorti rewarding.

Lastly, we thank our teammates who have worked persistently with dedication and the perseverance to put together a journal that reflects our best efforts.

With love and gratitude,
The Editorial Board

EDITORS' NOTE

After months of meticulous preparation, we take immense pleasure in presenting the thirteenth edition of Aapoorti. Year after year, through its inventive editions, Aapoorti has been fostering a culture of critical thinking and knowledge-driven learning for the young minds of the economics department. This year too, we have worked diligently to continue thislegacy and produce a quality publication.

Our theme for this year is 'Behavioural Economics'. Behavioural Economics is steadily being integrated into mainstream theory. Since its venture into the intellectual sphere, behavioural economics has gained immense popularity and credibility amongst academics and professionals. Many universities have introduced bachelors and masters courses on the subject and several governments have set up departments especially dedicated to behavioural policy measures. This wave of recognition has opened up several avenues in the field of behavioural economics and has led to a considerable upsurge in the scope of research in the field. The ever-growing literature in the field of behavioural economics called to our curiosities and prompted us to delve into this subject, with more resources available to us and more perspectives challenging ours than ever before. In this edition, our editors have tackled the thought-provoking subjects of incentives for criminal behaviour and biases in decision-making for self versus for others. Our research endeavours have been a learning curve for us, adding great nuance to our views on these subjects. We hope it does the same for our readers.

This edition also features interviews with two distinguished economists: Prof. Prabhat Patnaik and Prof. Bhaskar Dutta. We were fortunate enough to speak to them about their area of expertise and contemporary issues which proved to be a highly enlightening experience that we are glad to be able to share with our readers. This year we also received several guest submissions from renowned colleges all over the country. They include everything from research papers on multidisciplinary topics to book reviews on the latest economic literature.

We hope that this edition of Aapoorti serves your intellectual interests and is as enriching for you to read as it was for us to compile.

Warm Regards,
Ashmita and Riya
Editors-in-Chief

FACULTY ADVISOR'S NOTE

It is a great pleasure to introduce the 13th (2023) edition of Aapoorti, the annual magazine of the Economics department of the college. This year the theme for the journal is 'Behavioural Economics' which is described as combining the elements of economics with psychology to understand the behaviour or choices made by people in the real world and study the extent to which the behaviour is rational. Richard Thaler, who won the Noble Memorial prize for Economic sciences in 2017, points out the anomalies in people's behaviour that cannot be explained by standard rationality theory in economics. 'Choice architecture', coined by Richard Thaler and Cass Sunstein in their book published in 2008, '*Nudge: Improving decision about health, wealth and happiness*,' explains how choices are designed and presented to choice makers and how this is crucial in influencing and making a decision.

In our undergraduate course structure, we get the opportunity to majorly study and understand the mainstream perspective of analysing economic behaviour and decision-making by rational economic agents at a micro level to understand macroeconomic behaviour. We are very happy to see that our students are taking interest in exploringalternative economic theories going beyond their syllabus.

This edition consists of two contributions from our editorial board, namely, 'Decisions for the Self vs. Decisions for Others: Nature and Source of Biases', an experiment-based research article that examines the differences in decision-making when made for self versus others, in the domain of career paths; and 'A Causal Analysis of Non-violent Crime in India' that examines the relationship between various socio-economic conditions and the non-violent crime rate in India. We have included one article from RPP, the flagship research project of the Vishleshan vertical of Arthashastra, namely 'Analysis of the Adaptive use of Cryptocurrency in India'. Besides our in-house research initiatives, this edition consists of research articles ranging from the impact analysis of COVID-19 on the business ecosystem of Belagavi city in Karnataka, impact analysis of Social Sector Expenditure on Human Development and Growth in India, a cross-country analysis of the sustainability of cereal production in parts of South Asia, a literature review on the impactsof globalization to the analysis of terrorism in Afghanistan.

As per our tradition, we have reported interviews with two eminent economists like Prof. Prabhat Patnaik, Jawaharlal Nehru University and Prof. Bhaskar Dutta, Ashoka University.

I congratulate our students for their devotion and teamwork and the contributors for their immense support to bring this commendable edition. Wish our readers a happy and enriching reading.

Dr. Sutapa Das
Faculty Advisor, Arthashastra

TEACHER-IN-CHARGE’S NOTE

It’s my absolute pleasure and privilege to write a note for the 2023 edition of Aapoorti. Aapoorti has evolved over years and has become an integral part of the Arthashastra society. It gives our young researchers a platform to put their thoughts on paper. This year’s central theme is behavioural economics, which has expanded since the 1980s. However, it has a long history which can be traced back to the 18th Century Scottish economist Adam Smith. The study of behavioural economics is an interesting blend of economics and psychology, where the aim is to understand how and why people behave the way they do in the real world. It is quite different from neoclassical economics, where the economic agents make rational decisions.

With this interesting theme in place, the current edition collates several articles, research papers and book reviews from students and professors of other colleges. The Aapoorti team has also interviewed the eminent economists Prof. Prabhat Patnaik, known for his contribution to the Indian Marxist and political economy discourse, and Prof. Bhaskar Dutta, renowned for his work on game theory and distinguished association with Ashoka University. Alongside these, they present book reviews including that on *The Psychology of Money* by Morgan Housel to invoke a spirit of reading that transcends our classrooms.

We congratulate the team and the editorial board for successfully bringing in a brilliant edition of Aapoorti with their year-long, persistent contribution and hard work, which is well reflected in the journal. Wishing them all the best.

Dr. Sunita Meena
Teacher-in-Charge, Arthashastra

EDITORS' DESK

DECISIONS FOR THE SELF VS. DECISIONS FOR OTHERS: NATURE AND SOURCE OF BIASES

By Vedika Sakhardande, Aditi Gupta

Abstract

This research examines the differences in decision-making when made for self versus others, in the domain of career paths. With this study, we focus on studying the choices made by students across three dimensions: a) Choices made for the self b) Choices made for classmates c) Choices made by the average college students. We intend to answer the following questions: 1) Whether there exists any difference in choices made for the self and others 2) Does 'familiarity' play a role in affecting self-other differences 3) How gender affects self-other differences 4) Identify the proximate cause for self-other differences. We found that no self-other difference existed for peers or the average college student. Moreover, gender as a variable did not impact the risk-seeking tendencies of participants both within and across categories. We also see that the attributes considered when making choice for the self coincide with the attributes considered when making choice for the other.

Keywords: decision-making, risk preference, self-other difference

Introduction

As a flourishing domain, behavioural economics has laid the groundwork for revealing the biases and the irrationalities in human behaviour. The work of Thaler, Kahneman and Tversky has revealed how emotions and circumstances impact our presumably 'rational' choices and the real-world consequences this leads to. However, a relatively unexplored dimension of human decision-making lies in the study of how emotions and circumstances affect outcomes when we make choices for others. When the subject facing the consequences changes, are our decisions more or less biased? Given that these decisions made by one for the other are highly prominent not just in our day-to-day interactions but also a key aspect of our liberal democracies, understanding the drivers and biases of these choices holds tantamount importance. Example: Would a financial planner take the same actions they recommend to their client? Would people follow the same dating advice they give their friends? In this study, we attempt to study the differences in choices made for the self and those for others in the domain of career choices. The rationale behind this domain selection is that our sample population—undergraduate students—makes decisions in this domain frequently and are likely to treat the self and other conditions as unique than generalise responses when answering for others.

Beyond this, we also investigate how the "closeness" of the other to the respondent impacts choices by considering two levels of others—classmates and an average college student. Our analysis is complete with the involvement of a gender variable which we use to gain insights into the role of norms and socialization in choice outcomes. Through a self-diagnostic survey, we also attempt to locate the difference (if any) in the factors driving self-other differences.

Literature Review

In contradiction to the classical expected utility theory, Tversky and Kahneman found an alternate model for decision under risk developed which is called the 'prospect theory'. (Kahneman, Daniel and Tversky, Amos, 1979) It states that people don't prefer outcomes that are merely probable in comparison with outcomes that are obtained with certainty. This 'certainty effect' contributes to risk aversion in choices involving sure gains and to risk seeking in choices involving sure losses.

However, a further branch of decision theory seeks to study whether the choices made for the self are qualitatively and quantitatively similar to the decisions made for others. This type of decision-making is highly pervasive in our society and is observed at all levels: from the personal level—involving financial advisors creating investment plans for their clients or doctors taking decisions for their patients, to the social level—involving politicians rolling out policies for the masses.

This has resulted in studies conducted across various domains—the monetary decision domain (Stone et al, 2006), political decision-making (Hibbing and Alford, 2005), medical decision-making (Garcia-Retamero and Galesic, 2012) romantic decision-making (Beisswanger et al., 2010), job selection (Kray and Gonzalez, 1999) etc with each domain producing varying results about a) the existence of a self-other difference b) the extent of the self-other difference.

The above-mentioned studies, however, are further subdivided based on their definition of the 'other' as well as their hypothesis on the potential source of self-other difference. According to Hoch (1987), subjects made to predict the attitudes of one of three target populations: an average married American consumer; their average graduate peer or their spouse made more accurate predictions for their spouses and peers than the average American consumer. This established that the more the subjects are familiar with the 'other' they make assumptions for, the more the assumptions align with their own values and opinions. This is further reiterated in the work of Hsee and Weber (1997).

The self-other difference is also owed to various factors. Kray and Gonzalez (1999) establish that self-other difference occurs due to the difference in weighing of attributes assigned to a decision as well as the consideration of more attributes when deciding for the self. Beisswanger et al. (2010) answer the question—exactly which attributes are ignored when people make decisions for others? And find that 'negative consequences' of choices are considered more stringently when making choices for the self as opposed to choice-making for the other. Stone et al. (2006) consider the role of regret in establishing a self-other difference. Hsee and Weber (1997) study the role of both the hypothesis of 'risk-as-value' which could lead people to believe they are more risk-seeking than others and the 'risk-as-feelings' which leads people to predict other's risk preference based on stereotypes of the group to which the person belongs. Larrick (1993) stated that self-other decision-making discrepancies could emerge due to different strategies for self-image protection.

A key delineation in all of the above-mentioned studies is twofold: a) Whether they can demonstrate a statistically significant self-other difference and b) the degree to which this difference is observed. The respective conclusions are domain-specific and depend on the sample studied. Hsee and Weber (1997) found that participants systematically predicted others to be more risk-seeking than themselves with participants however only predicting abstract others to be more risk-seeking and concrete others to not be so. Beisswanger et al. (2010) found that people were more risk-taking when making decisions for their friends however this difference existed only for circumstances involving a low life impact and vanished for circumstances involving a high life impact. Stone et al. (2006) however found that individual decision-making regarding financial situations can be generalised to decision-making for others and no self-other difference in decision-making was observed.

Study

The primary purpose of our study was to examine whether there exists any difference in self-other risk preference in the domain of career choices among undergraduate students. To accomplish this goal, we surveyed people and asked them to make career choices for either a) themselves, b) their classmates, or c) an average college student. With this design, we wanted to analyse the degree of difference between choices made for these categories. In order to locate the proximate source of disparity we asked the participants to conduct a self-diagnostic test which required them to indicate the factors which led to their choices from the following list of 5: a) Social norms regarding favourable career choices, b) Search for security, c) Search for higher returns, d) Perceived dangers associated with the option not selected, and e) How options aligned with goals of the subject you were choosing for. These factors summarise the key factors studied in the papers stated in the literature as the major source of self-other difference. Gender as a variable was used to derive intersectional insights about the data.

Methodology

Participants. Participants were 61 females and 35 males aged 18-22 years who were undergraduate students at colleges across India.

Design. The study involved a 3 (Group: self, other-familiar, other-abstract) x 2 (Gender: male vs female) between-subjects design. The dependent variable was the participants' level of risk-seeking. In order to avoid people responding similarly for themselves and others a between-subjects design was employed to eliminate the possibility of a response bias.

Materials. The questionnaire used in this study had 5 scenarios regarding a choice between career paths. This domain was selected so that respondents would give a close approximation of their own opinions and instincts as opposed to them estimating their preferences. Two options followed each scenario with one being risk-seeking (eg: Investing personal funds to establish a venture that has an 8.5% chance of earning Rs. 235 lakhs post the 1 year required to establish the venture) and one being risk-averse (eg: investing in a full-time masters' degree that has a graduate earning a record of a starting salary of Rs. 20 lakhs on average). The expected outcome of both scenarios was the same to enable participants to make choices on the basis of their risk preference/their perception of others' risk preference solely. Participants received a different version of the questionnaire depending on whether they were to make choices for themselves, other classmates or for an average college student. The survey also contained a diagnostic section to enable respondents to indicate the core motivations behind their choices. This section intended to clue us into the main drivers of decisions and identify potential sources of difference.

Procedure. Participants received one of the versions of the survey based on a randomised number selection on Google forms. They were provided with instructions on answering the form and urged to rely on their intuition. The results were analysed using one-way ANOVA using the R platform with subsidiary analysis performed using Excel.

Limitations. The study was a hypothetical at-home study which generated the following drawbacks in analysis a) The lack of consequentialism to the choices could lead to data that doesn't reflect real-world instincts, and b) Participants may have responded similarly to the three categories due to an inability to differentiate the role they played in each circumstance. Lastly, the discrete nature and limited size of the data may have interfered with the prediction power of the tests conducted.

Results

In the questionnaire, each question contained a risk-seeking and risk-averse option with the risk-seeking answer attaining a score of 1 and the risk-averse answer attaining a score of 0. An overall score (participant risk score) was given to each participant by summing up the scores of the 5 scenarios. TA score of 5 indicated perfect risk seeking while a score of 0 indicated perfect risk aversion.

Within the 97 responses overall, each category received > 30 responses. To carry out a fair comparison of the means, we checked our data for normality and homogeneity of variance (see Appendix for results of tests).

The data was analysed for differences across categories: self, peer and stranger and across gender: female and male.

A) Category-wise risk score comparison

To evaluate the differences in risk scores across categories, we carried out different types of tests in R. The gender of the respondents was not a variable under consideration for this analysis.

The null and alternative hypotheses for the following tests were:

H_0: No difference among the means of the categories.

H_1: At least one category has a different mean.

i) One-way ANOVA test

```
               Df Sum Sq Mean Sq F value Pr(>F)
study$Category  2   7.16   3.580   2.529 0.0852 .
Residuals      94 133.09   1.416
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

The p-value = 0.0852 > 0.05 implying that we fail to reject the null hypothesis at 5% significance.

∴ There is no significant difference between the categories according to this test.

We can conclude that there exist no self-other differences both when decisions are made for "familiar" peers and "abstract" others.

ii) Tukey HSD Post hoc test

Next we conducted the Tukey test to run a pairwise comparison of the means to find any difference among each of the categories.

```
  Tukey multiple comparisons of means
    95% family-wise confidence level

Fit: aov(formula = study$Risk.score ~ study$Category, data =
 study)

$`study$Category`
                    diff        lwr       upr     p adj
Self-Peer     -0.5151515 -1.2127326 0.1824295 0.1892398
Stranger-Peer  0.1055718 -0.6031712 0.8143149 0.9330432
Stranger-Self  0.6207234 -0.0880197 1.3294664 0.0982939
```

The p-values > 0.05 across all category comparisons and thus we fail to reject the null hypothesis.

∴ There is no significant difference between the categories: self-peer, stranger-peer and stranger-self

Note 1: At a 10% significance level, the difference between the stranger and self categories becomes statistically significant.

Note 2: The high p-value between Stranger and Peer implies that the responses for these categories exhibited the greatest homogeneity implying people had a nearly congruent perception of risk for both peers and the average college student.

iii) Kruskal-Wallis Rank Sum test

Taking into consideration the uncertainty of the normality of our data we conducted the Kruskal-Wallis test which is a non-parametric alternative to the ANOVA test.

```
        Kruskal-Wallis rank sum test

data:  study$Risk.score by study$Category
Kruskal-Wallis chi-squared = 3.3929, df = 2,
p-value = 0.1833
```

The p-value = 0.1833 > 0.05 implying that we fail to reject the null hypothesis.

∴ There is no significant difference between the categories.

iv) Wilcoxon Rank Sum test

We lastly ran a pairwise comparison between the categories for any discrepancy.

```
        Pairwise comparisons using Wilcoxon rank sum test wi
th continuity correction

data:  study$Risk.score and study$Category

         Peer Self
Self     0.17 -
Stranger 0.97 0.17

P value adjustment method: BH
```

The p-values > 0.05 across all category comparisons and thus we fail to reject the null hypothesis.

∴ There is no significant difference between the categories.

All four tests failed to reject the null hypothesis and gave the same result of no statistically significant difference between any category.
∴ *There was no difference found in decision-making for self vs. others.*

B) Gender-wise risk score comparison

Secondly we wanted to evaluate if gender was a factor in any discrepancy in decision-making between and within the categories. Gender as a variable was used to enable us to study the potential impact of norms and social values on risk-taking. Gender as a potential source of difference in risk behaviour was studied both within and across categories.

i) Comparing within a category

Comparison of means was done within categories for the two genders: females and males.

The null and alternative hypotheses for the following tests were:

H_0: No difference among mean risk scores of males and females within the category.

H_1: There is a difference in the mean risk score of males and females within the category.

a) Self

The data from female and male samples were found to be normal and variances to be equal, fulfilling the assumptions to fairly conduct an unpaired T-test to compare means.

```
        Two Sample t-test

data:  self$Male and self$ï..Female
t = -0.17734, df = 31, p-value = 0.8604
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -0.9135023  0.7673484
sample estimates:
mean of x mean of y
 2.076923  2.150000
```

The p-value = 0.8604 > 0.05, thus we fail to reject the null hypothesis.

∴ *There is no significant difference in the means of gender in the self category.*

b) Peer

The independent samples of female and male responses of the peer category were not found to be normally distributed. A Mann-Whitney U test was performed as a non-parametric alternative to the T-test.

```
        Wilcoxon rank sum test with
        continuity correction

data:  peer$Male and peer$ï..Female
W = 139, p-value = 0.475
alternative hypothesis: true location shift is not equal to 0
```

The p-value = 0.475 > 0.05, thus we fail to reject the null hypothesis.

∴ *There is no significant difference in the means of gender in the peer category.*

c) Stranger

The independent samples of female and male responses of the peer category were not found to be normally distributed. A Mann-Whitney U test was performed as a non-parametric alternative to the T-test.

```
        Wilcoxon rank sum test with continuity correction

data:  stranger$Female and stranger$Male
W = 103, p-value = 0.9647
alternative hypothesis: true location shift is not equal to 0
```

The p-value = 0.9647 > 0.05, thus we fail to reject the null hypothesis.

∴ *There is no significant difference in the means of gender in the stranger category.*

There was no gender-based difference found in all categories.

ii) Comparing between categories within a gender

Comparison of means was done across categories within the two genders: females and males.

The null and alternative hypotheses for the following tests were:

H_0: No difference among means of the categories across the gender.

H_1: At least one category has a different mean across the gender.

a) Female

The independent samples of females of the peer and stranger categories were not found to be normally distributed. The Kruskal-Wallis test was performed to compare the means between the categories.

```
        Kruskal-Wallis rank sum test

data:  my_data_fem$Score by my_data_fem$Group
Kruskal-Wallis chi-squared = 2.1344, df = 2, p-value = 0.344
```

The p-value = 0.344 > 0.05, thus we fail to reject the null hypothesis.

∴ *There is no significant difference in the means of the categories within females.*

b) Male

The independent samples of males of the peer and stranger categories were found to be not normally distributed. The Kruskal-Wallis test was performed to compare the means between the categories.

```
        Kruskal-Wallis rank sum test

data:  my_data_male$Score by my_data_male$Group
Kruskal-Wallis chi-squared = 1.8421, df = 2, p-value = 0.3981
```

The p-value = 0.3981 > 0.05, thus we fail to reject the null hypothesis.

∴ *There is no significant difference in the means of the categories within males.*

There was no categorical difference found within the genders.

C) Qualitative participant evaluation

The above graph shows the distribution of responses when asked to diagnose the factors guiding their choices. We can see that the primary motivator appears to be security which is followed by goal attainment. Social norms appear to not be a dominant factor guiding choice outcomes among undergraduate students.

The following table gives us an understanding of the tally of factors considered when making a decision within each category:

	Social norms	Security	Higher returns	Perception of danger	Goal alignment
Self	9.09%	69.69%	57.57%	36.36%	100%
Peer	3.03%	30.30%	15.15%	12.12%	57.57%
Stranger	16.12%	64.51%	54.84%	41.44%	64.51%

For all three categories, security and goal alignment appear as the primary motivators. The centrality of all factors falls for the peer category indicating that a factor not summarised by the five stated may be a key motivator of choice for peers.

General Discussion

In general, we find that decisions were not influenced by who the decisions were made for- self, peers or average college students. The decisions made for the self, for peers and for strangers had the same mean as per ANOVA testing indicating that a self-other difference does not exist in our domain of career choices. While our findings are consistent with the study conducted by Stone, Yates and Caruthers in the monetary decision-making domain, it goes against the findings of parallel studies conducted by Beisswanger et al., Hsee and Weber, Kray and Gonzalez etc. Further, we found that gender as a variable produced no difference in the results. The risk-taking behaviour of males and females was similar across samples and no gender-wise self-other difference existed. This is consistent with the findings of Stone et al. observed no difference in the level of risk-taking based on who the decision is being made for amongst both males and females.

Proximate reasons:

A key factor for self-other difference as found in the Hsee and Weber (1997) study is the 'risk-as-feelings' notion which states that people make decisions for others based on their perception of the risk level of the other. This perception is socially and normatively determined. For example, in Hsee and Weber (1995), both American and Chinese participants predicted that Americans were more risk-seeking than Chinese people even though in reality the Chinese were found to be significantly more risk-seeking. Homogenous responses across the self and the other could then be elicited if undergraduate students perceive others to have similar risk tastes as themselves by virtue of experiences and stereotypes they have contendedwith. Kray (2000) found that people choose the alternative highest on the most important dimension to reduce the degree of responsibility for unfortunate consequences when advising others. If undergraduate students consider a particular dimension to be important not just for themselves but also for their classmates and college students on average, then there is a possibility of selecting the alternative that scores the highest on this dimension across the categories. Career choices with higher salaries may have been chosen albeit they were riskier as higher income gains were perceived as something others would want.

As the experiment was based on hypothetical circumstances and the choices led to no consequential benefits for respondents, the true preferences of the respondents may not have been revealed. However, since Lichtenstein and Slovic (1973) found that there generally is no difference between responses when tasks are hypothetical or real we are motivated to consider other methodological dimensions. Curley et al. found that people's tendency to choose certain outcomes over uncertain outcomes was reduced when decisions were made in private as opposed to those made in public. Hence, at-home survey methods may lead to increased risk-seeking across all categories of responses. Our study also had a poor feedback procedure for respondents. Participants were not told of the impact of their decisions which could've reduced the role of regret and guilt found to have produced self-other differences in other studies.

Arnett's (Arnett, 1992) theory on socialization makes a distinction between narrow and broad specialisation. Narrow socialization refers to cultural influences that leave little room for departure from norms while broad socialization allows for a wide range of behaviour. Stone et al. considers environments such as college as allowing for broad specialisation which leads to respondents being unaffected by other dominant cultural norms. Narrow socialisation could be a source of consistent risk-taking between males and females and also a source of consistent choices between those made for the self and others due to similar normative beliefs of ideal career frameworks and choices.

When making decisions for others, people are more likely to choose what they believe will make other people happy while they rely on their own idiosyncratic preferences when making decisions themselves (Kray, 2000). However, if there is a consensus between what is considered to provide utility to the general populace and the individual, one can hypothesise a bridging of the gap in a choice made for the self and that for the other. In the career domain for example, since the sample population—college students—opinion of the utility of options is derived based on inferences from similar social discourse and mass media rather than from their own experience or insight there could be a convergence in other advice and personal decision making.

Our results may also differ from the previous studies due to the absence of any indication of personal satisfaction in our choice scenarios. The scenario used in Kray and Gonzalez's study contained two jobs to choose from, one high in salary and the other high in personal satisfaction.

In contrast, our study made the respondents choose from two career choices withdifferences in incomes and risk level, with no mention of the self-fulfilment one may gain from any of the choices. Their satisfaction may have differed based on their personal goals and was not pre-specified in the alternatives. The difference in the lack of this particular attribute might have led to a decision strategy where the respondents chose between the alternatives solely on the security of income and made a generalised choice for others too.

A final contributing factor to the lack of difference may be attributed to the nature of the scenarios. Beisswanger et.al found that self-other difference disappeared for scenarios that had a high life impact while it persisted for scenarios that had a low life impact. Since a majority of the scenarios included in our study had a life impact by virtue of dealing with career choices that determined the main sources of income of people a self-other difference was not discernible.

Lastly, it has to be noted that the type of advising that we explored was limited and general in nature, as compared to the advice given to a specific person. The respondents had no idea of the preferences of the others they were choosing and the estimation of the same may have generalised the choice for others to their choice.

Conclusion

Our work has demonstrated that in the career choice domain, there exists no self-other difference both for 'familiar' and 'abstract' others. We have also shown the insignificance of gender in producing a difference in risk attitudes. Given the nature of our sample and the domain under consideration, this result appears consistent. However, there is a need for further research in the domain with a larger sample and a focus on in-person surveys that provide feedback on choices in order to prove against any methodological limitations foundin this study. Surveys considering both high and low-impact scenarios across this domain would provide broad-scoped insight into the discourse of self-other difference. A better examination of the qualitative motivators with a better understanding of the sample being analysed will deepen our understanding of the field.

References

1. Hsee, C. K., and Weber, E. U. (1997). A fundamental prediction error: Self–others discrepancies in risk preference. *Journal of Experimental Psychology: General*, *126*(1), 45–53. https://doi.org/10.1037/0096-3445.126.1.45

2. Stone, E. R., Yates, A. J., and Caruthers, A. S. (2002). Risk taking in decision making for others versus the self. *Journal of Applied Social Psychology*, *32*(9), 1797–1824. https://doi.org/10.1111/j.1559-1816.2002.tb00260.x

3. Beisswanger, A. H., Stone, E. R., Hupp, J. M., and Allgaier, L. (2003). Risk taking in relationships: Differences in deciding for oneself versus for a friend. *Basic and Applied Social Psychology*, *25*(2), 121–135. https://doi.org/10.1207/S15324834BASP2502_3

4. Kray, L., and Gonzalez, R. (1999). Differential weighting in choice versus advice: I'll do this, you do that. *Journal of Behavioral Decision Making*, *12*(3), 207–217. https://doi.org/10.1002/(SICI)1099-0771(199909)12:3<207::AID-BDM322>3.0.CO;2-P

5. Kahneman, D., and Tversky, A. (1973). On the psychology of prediction. *Psychological Review*, *80*(4), 237–251. https://doi.org/10.1037/h0034747

6. Hibbing, J. R., and Alford, J. R. (2005). Decision making on behalf of others. In *annual meeting of the American Political Science Association, Washington, DC*.

7. Garcia-Retamero, R., and Galesic, M. (2012). Doc, what would you do if you were me? On self–other discrepancies in medical decision making. *Journal of Experimental Psychology: Applied*, *18*(1), 38–51. https://doi.org/10.1037/a0026018

8. Hoch, S. J. (1988). Who Do We Know: Predicting the Interests and Opinions of the American Consumer. *Journal of Consumer Research*, *15*(3), 315. https://doi.org/10. 1086/209169

9. Kray, L. J. (2000). Contingent Weighting in Self-Other Decision Making. *Organizational Behavior and Human Decision Processes*, *83*(1), 82–106. https://doi. org/10.1006/obhd .2000.2903

10. Lichtenstein, S., and Slovic, P. (1973). Response-induced reversals of preference in gambling: An extended replication in Las Vegas. *Journal of Experimental Psychology, 101*(1), 16–20. https://doi.org/10.1037/h0035472

11. Arnett, J. (1992). Socialization and adolescent reckless behaviour: A reply to Jessor. *Developmental Review*, *12*(4), 391–409. https://doi.org/10.1016/0273-2297(92)90015-t

12. Larrick, R. P. (1993). Motivational factors in decision theories: The role of self-protection. *Psychological Bulletin*, *113*(3), 440–450. https://doi.org/10.1037/0033-2909.113.3.440

Appendix

To analyse the data through the parametric one-way ANOVA, we have to check our data for the following assumptions:

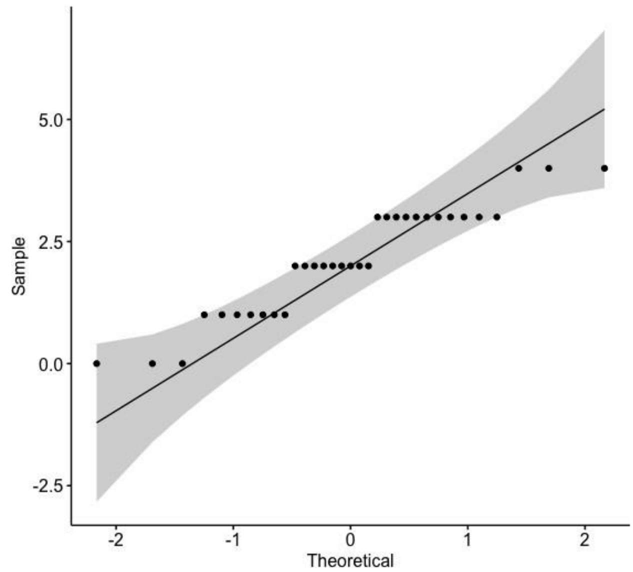
1. Independence of observations: The data were randomly collected from a randomly selected population and there is no association of the populations within or between the groups.
2. Normally-distributed response variable: The data in each group needs to be normally distributed.
3. Homogeneity of variance: The variation within each group being compared should be similar for every group.

Normality:

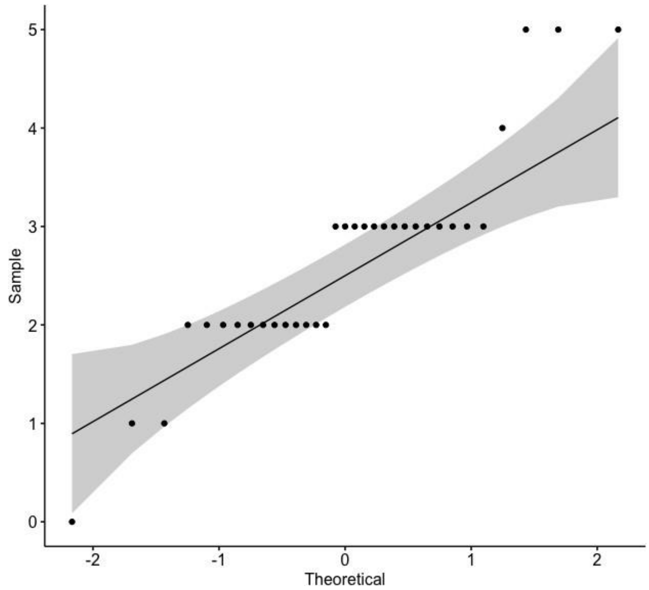
Our sample sizes for each category are ≥ 30. We still test for normality within each category, visually and statistically.

1) Visual normality test by QQ-plot:

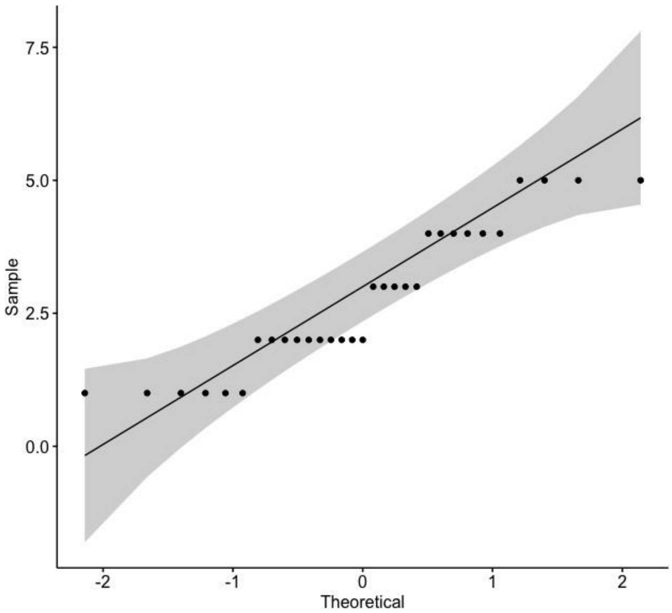
i) SELF:



ii) PEER:



iii) STRANGER:



Visually, all three groups seem to be normally distributed.

2) Statistical tests

We used two tests, the Shapiro-Wilk normality test R and Jarque–Bera test to check for goodness-of-fit.

The null and alternative hypotheses for the tests were:

H_0: Data is normally distributed.

H_1: Data is not normally distributed.

i) Shapiro-Wilk normality test:

a) SELF:

```
        Shapiro-Wilk normality test

data:  self$Score
W = 0.91194, p-value = 0.01103
```

The p-value = 0.01103 < 0.05, so we reject the null hypothesis.

∴ *Data is not normally distributed.*

b) PEER

```
        Shapiro-Wilk normality test

data:  classmate$Score
W = 0.87439, p-value = 0.001231
```

The p-value = 0.001231 < 0.05 so we reject the null hypothesis.

∴ *Data is not normally distributed.*

c) STRANGER

```
        Shapiro-Wilk normality test

data:  stranger$Score
W = 0.89055, p-value = 0.004222
```

The p-value = 0.004222 < 0.05 so we reject the null hypothesis.

∴ *Data is not normally distributed.*

The Shapiro-Wilk normality test seems to be failing for all three groups.

Another alternative test was the Jarque–Bera test which was conducted in excel.

ii) Jarque–Bera test:

a) SELF

SELF	
observations	33
sample skewness	-0.2511275
sample kurtosis	-0.7106197
JB test statistic	1.04120544
p-value	0.59416233

The p-value = 0.5942 > 0.05 so we fail to reject the null hypothesis.

∴ *Data is normally distributed.*

b) PEER:

CLASSMATE	
observations	33
sample skewness	0.3297781
sample kurtosis	1.1108392
JB test statistic	2.2948449
p-value	0.317454

The p-value = 0.3175 > 0.05 so we fail to reject the null hypothesis.

∴ *Data is normally distributed.*

c) STRANGER:

STRANGER	
observations	31
sample skewness	0.32946443
sample kurtosis	-1.0911232
JB test statistic	2.09861887
p-value	0.35017949

The p-value = 0.3502 > 0.05 so we fail to reject the null hypothesis.

∴ *Data is normally distributed.*

The results of the J-B test correspond to the visual approach. The normality of the data is shown visually and formally.

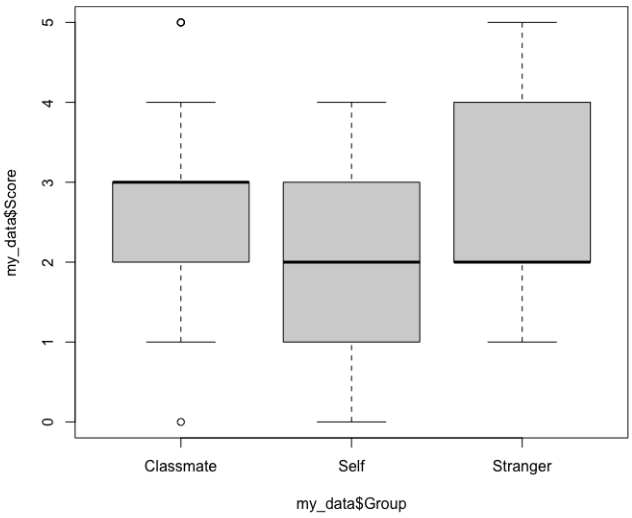
Uncertainty of normality

Even though each category had a minimum sample of 30, there is still ambiguity about the normality of the data because of its discrete nature. Visually and via the Jarque-Bera test, the data was shown normally distributed, but the Shapiro-Wilk test does not work in the individual category samples. Discrete data is usually difficult to prove as normally distributed, so we took into account the uncertainty around the normal nature of data, and it being one of the core assumptions of one-way ANOVA, we additionally used non-parametrictests like the K-W test which doesn't take normality of data as an assumption.

VARIANCE TEST:

First we will determine if the variance between all three categories: self, peer and stranger is equal or not. We can do this visually or by using a statistical test.

1) Visual variance test by using BOXPLOT:



The boxplot here shows a similar variance across the categories as the boxes and the whiskers have a comparable size for all categories.

2) Statistical F test:

Statistically, we can observe homogeneity by comparing the variances between two groups at a time using the F test.

The null and alternative hypotheses for the test were:

H_0: All variances are equal.

H_1: At least one variance is different.

a) Between Self and Peer:

```
        F test to compare two variances

data:  self$Score and classmate$Score
F = 1.1031, num df = 32, denom df = 32, p-value = 0.7831
alternative hypothesis: true ratio of variances is not equal to 1
95 percent confidence interval:
 0.5447884 2.2334185
sample estimates:
ratio of variances
           1.10306
```

The p-value = 0.7831 > 0.05, thus we fail to reject the null hypothesis.

∴ *The variances are equal.*

b) Between Peer and Stranger:

```
        F test to compare two variances

data:  classmate$Score and stranger$Score
F = 0.65419, num df = 32, denom df = 30, p-value = 0.2406
alternative hypothesis: true ratio of variances is not equal to 1
95 percent confidence interval:
 0.3178781 1.3350961
sample estimates:
ratio of variances
         0.6541907
```

The p-value = 0.2406 > 0.05, thus we fail to reject the null hypothesis.

∴ *The variances are equal.*

c) Between Stranger and Self

```
        F test to compare two variances

data:  self$Score and stranger$Score
F = 0.72161, num df = 32, denom df = 30, p-value = 0.366
alternative hypothesis: true ratio of variances is not equal to 1
95 percent confidence interval:
 0.3506385 1.4726905
sample estimates:
ratio of variances
         0.7216113
```

The p-value = 0.366 > 0.05, thus we fail to reject the null hypothesis.

∴ *The variances are equal.*

This result corresponds with the visual test, and so homogeneity is shown visually and formally.

A CAUSAL ANALYSIS OF NON-VIOLENT CRIME IN INDIA

By Ashmita Chowdhury, Riya Kalia and Srishti Menon

Abstract

This paper examines the relationship between various socio-economic conditions and non-violent crime rate in India. We explore the intersection of behavioural economics and crime and attempt to investigate if changes in socio-economic conditions can alter criminal behaviour leading to a change in the overall crime rate of a country. The study focuses on the effects of factors like unemployment, poverty and per capita income on non-violent crime across the country. Besides these factors, the study also reveals the importance of deterrence variables—conviction, arrest and police strength—in explaining crime rates. Additionally, we focus on property crime and economic offences as our independent variables. While witnessing the peaks, troughs, and turning points in our panel data set, we examine the impact of our dependent variables through a LASSO regression model. This paper uses data from 2005-20 that has been collected from various government data portals including NCRB (National Crime Records Bureau) and the Ministry of Education, GOI, among others. Through our study, we aim to update the existing literature on crime in developing countries. We recognise the India-specific limitations of the police-recorded crime data and want readers to consider the findings of the study with caution.

Keywords: property crime, economic offences, criminal behaviour, economic incentives, deterrence

Introduction

On the surface, the Crime in India reports show a decline of 7.6% in registration of cases over between 2020 and 2021 and a decline of 41.9 per lakh population in the crime rate. But simultaneously, we witnessed a 18.5% rise in property crimes from 6,43,583 cases in 2020 to 7,62,368 cases in 2021 (NCRB, 2021). Adding to the problem, the number of cases registered under economic offences has increased from 1.14 lakh cases in 2012 to an all-time high of 1.74 lakh cases in 2021, registering an increase by 52% in ten years (NCRB, 2021). According to a crime victimisation and safety perception survey in Delhi and Mumbai, theft was the most commonly experienced crime with mobile phones being objects that were most commonly stolen. Of the households surveyed, 10.14% in Delhi and 12.36% in Mumbai had been victimised by theft (CHRI, 2015). These rates are high for property and economic crimes despite several cases going unreported. Less than half of the incidents of cell phone and luggage theft, which are exceedingly common, are reported to the police. It is only for high value items like jewellery, computers or laptops, and cars with the utilitarian concern that claiming insurance for these items requires showing a copy of the FIR registered by police, that the case was actually reported.

However, there's no one common cause behind crimes of such kind. Society's *evils* like poverty, unemployment, poor growth and development, among others, have been considered to go hand in hand with high incidence of crime. However, while in recent years, the discussion of crime rate in pro-poor growth agenda remains absent, it is stressed that income distribution might be a judicious solution to reduce crime and violence (Anser et al., 2020). In addition to this, these factors show a stronger relation to property crime in specific than those like violent crimes, due to the economic and pecuniary linkages in the act. In using data from the United States to study felony and unemployment, we see a substantial decline in property crime rates during the 1990s, attributable to the decline in the unemployment rate. Meanwhile, the evidence for violent crime is considerably weaker (Raphael et al., 2001).

To counter crime, education and the provision of social services have also been considered instrumental. The higher the level of education an individual has attained, the lower the risk of both criminal behaviour and penal sanction. It is estimated that the social savings from crime reduction associated with high school graduation (for men) is about 14–26 % of the private return. Additionally, schooling increases individual wage rates, thereby increasing the opportunity costs of crime as well as incarceration (Lochner et al.). The stigma of a criminal conviction is larger for white collar workers than blue collar workers (Jeffrey Kling, 2002).

As the world unabashedly committed crimes, society developed penal codes and criminal laws to define criminal behaviour and specify the forms of punishments and corrective measures a criminal would have to encounter. In hand with this, went the dehumanisation of criminal law and punishments—prisons became punishment centres from the intended rehabilitation/correction facility that they were intended to be. This fear of punishment has been proclaimed to deter those with criminal tendencies from actually committing the crime. Be it a steadily increasing police strength which in 2020 was at 155.78 per lakh population, increasing rate of arrests, or even the decadal average rate of conviction after legal procedures being 30.75%—they serve to reinstate the negative consequences of committing a crime, and thus the indirect benefits of abiding the law (Ministry of Home Affairs, 2021; Prisons in India, 2011 to 2020).

Despite instating a system to prevent crimes, criminal behaviour persists and thrives, indicating that the linkages are more complex than perceived above. This paper thus places its lens on non-violent crime to understand its causes and deterrents, with a specified interest in India since 2005.

Determinants of Crime

A total of 60.96 lakh cognizable crimes including over 36.63 lakh Indian Penal Code (IPC) crimes and 24.32 lakh Special and Local Laws (SLL) crimes were registered in 2021. Simultaneously, we witnessed a 18.5% rise in property crimes from 6,43,583 cases in 2020 to 7,62,368 cases in 2021 (NCRB, 2021). While these numbers are not historically alarming and are an improvement from the past, they do make it clear that crime, in all its forms, is an unfortunate part of our society. But most of us are not criminals. So what drives a small number of us to commit criminal acts?

Through years of research criminology suggests that while each person who commits a crime has their own unique reasons and life situation, there are a few overarching factors that can contribute to criminal behaviour. These can include psychological factors like adverse childhood experiences, negative social environment and substance abuse (Walden University, 2022) or financial desperations like lack of food, clothing and shelter, among others.

In their paper 'Understanding the determinants of crime', Ayse Mrohoro, Antonio Merlo, and Peter Rupert present several properties of the benchmark economy calibrated to deliver a crime rate of 5.6% to match the crime rate in the U.S. in 1980. In particular, they investigate the implications of their model with respect to the composition of the criminal population. First, note that their model predicts that about 79% of the people engaging in criminal activities are employed and only the remaining 21% are unemployed. This implies that approximately 5% (16%) of the employed (unemployed) population engages in criminal activities. This (perhaps surprising) implication of the model is consistent with the data. According to the Bureau of Justice Statistics, in 1979, 71% of all state prisoners were employed prior to their conviction. 11 Studies by Grogger (1998) and Witte and Tauchen (1994) that use other data sets provide further evidence in support of this finding. Next, they turn their attention to the composition of the criminal population by age and educational attainment. Their model predicts that about 76% of the people who commit property crimes are 18 years of age or younger.

According to the Federal Bureau of Investigation, in 1980, 47.7% of all people arrested for property offences were 18 years of age or younger. While the figure in the data is much lower than the one generated by the model, juvenile property offenders are often released without being formally arrested and charged of a crime. Furthermore, the model-predicted fraction of criminals without a high school diploma isequal to 46.1%. In 1979, 52.7% of the correctional population in state prisons did not have a high school diploma. Hence, the model seems to be capable of reproducing certain dimensions of the socio-demographic composition of the criminal population fairly well. In addition, the model matches the capital output ratio and the share of consumption in outputfor 1980.

There is a significant body of research on crime, and the macroeconomic and social conditions that could be correlated to criminal activity, and the effects of crime on the economy. Gaviria and Pagés, 2002, Mathur, 1977, Stevans, 1983, Meera and Jayakumar, 1995, and Masih and Masih, 1996 states that there are basically three determinants of crime: economic, demographic and deterrent factors. Here, this paper deals with finding a relationship that highlights whether factors such as GDP, unemployment and poverty have any effect on Property Crime in India and how effective deterrence factors like total number of persons arrested, conviction and police strength.

Property Crime here refers to theft or damage to private property that includes, among other crimes, burglary, larceny, theft, motor vehicle theft, arson, shoplifting, and vandalism. These are often non-violent. In 2021, 20.8% of crimes were property related (NCRB, 2021). They often go unreported as shown by, "from 2006 to 2010, the highest percentages of unreported crime were highest among household theft (67%)" (BJS, 2010). Therefore this paper chose property crimes as the dependent variable for the study.

1. The Relationship between GDP per Capita and Crime

Existing research when focusing on GDP and Crime mainly considers two hypotheses in the case of low GDP 1. Crime rates will increase as people get poorer and more desperate for money and 2. The victims of crime will get hit, thus reducing the opportunities for criminals to steal (The Economist, 2011; Roman, 2013). Neither could conclusively prove either hypothesis but the Economist was able to conclude that those states hit hardest by the recession had the biggest drop in crime rates (using data from US Department of Justice). This conclusion backs up the second hypothesis.

2. The Relationship between Unemployment and Crime

Of the numerous factors that might influence criminal activity, Raphael and Winter-Ebmer (2001) showed that unemployment is a major contributor to criminal activity, especially property crime (Howsen et al., 1987; Carmichael et al., 2001; Andresen, 2012). In addition, unemployment can influence criminal activities via criminal motivation and criminal opportunity based on the Cantor-Land model (Phillips et al., 2012). The economic theory of crime, states that the opportunity cost of engaging in criminal activities reduces when unemployment increases (Becker, 1974).

In EU-28 countries, Ayhan and Bursa found a positive relationship between unemployment and crime (Ayhan et al., 2019). In EU-28, the crime rate increase by 1.53 unit when unemployment rises by 1 unit.

3. Poverty and Crime

Pare and Felson (2014) critically analyse the relationship between poverty and crime. Most academicians are of the opinion that poverty and destitution induces criminal behaviour. The inadequacy of fair opportunities backed by discriminatory attitudes towards economically weaker sections drives them towards a horde of negative experiences that propels them into the world of crime (Merton, 1938; Agnew, 1999). The neighbourhoods people live in also play a significant role in influencing them to commit crimes, with the poor typically residing in areas that display high social dysfunctionality with low levels of collective efficacy (Bursik 1988; Sampson, Raudenbush, and Earls, 1997). If the neighbourhood is rife with violence, the propensity of residents to adopt arms as a mode of self-defence and exhibit aggressive demeanour, rises (Anderson, 1999; Felson and Paré, 2010). Poverty has certain societal disadvantages that in turn prompt such individuals to partake in deviant practices of violence as a response to the disrespect they faced (Anderson, 1999;Miller, 1958;Wolfgang and Ferracuti, 1967). Insufficient access to the judicial system also triggers poor people to deal with their grievances via riotous crime (Black, 1976, 1983).

According to (Becker, 1968), if the gains from committing an offence exceed their associated costs, a person is more liable to engage in offensive behaviour. Since the economically underprivileged witness increasing returns from each property crime committed, they are more likely to commit such crimes vis-à-vis the general populace.

4. Other explanatory variables: Unemployment Insurance and Level of Urbanisation

The coverage of people under some sort of social security net like unemployment insurance policy determines their propensity to engage in criminal activity. As per an empirical analysis of property crime and its explanatory factors in USA between 2011 and 2015, holding other variables constant, if the number of employees covered by unemployment insurance policy increases by 1000, approximately, property crime increases by 89 cases (Yin, 2017). This is contrary to the more recognised negative correlation, where increase in unemployment insurance assures a decline in property crime. This is validated in a study showing that a one-standard-deviation increase in unemployment benefits is associated with 2.4% and 1.9% lower property and violent crime rates for a county at average unemployment (Behambari, 2020). In our study, we consider unemployment insurance as a subcategory of the variable, social sector expenditure.

Meanwhile, economic offences such as property thefts, automobile thefts, pick pocketing, cheating etc, are more in urban areas than in rural areas. A 2010 crime analysis of Pakistan found a positive association between crime occurrence and urbanisation, especially the lack of planned urbanisation and the consequent land shortages and resource scarcities that motivate people toward crimes (Iqbal et al., 2010).

Crime and Deterrence

Deterrence is the intuitively psychological mechanism of weighing the perilous risks of committing a crime vis-à-vis its perceivable benefits prior to offending deployed by potential perpetrators (Jacobs, 2010). It is the idea that people will be discouraged from indulging in crime when the threat of punishment looms large.

In Cesare Beccaria (1963, 1764), prevention of crime can only occur if the law forces potential criminals to make an accurate "association" of ideas between crime and punishment**.** Thus deterrence variables like probabilities of being arrested and convicted determine the expected returns from crime (Becker, 1968; Ehrlich, 1973, 1975, 1996; Grogger, 1991).

When assured that their chances of getting caught are a fair few, perpetrators are emboldened to continue their criminal wrongdoings since the anticipated benefits far exceed the risks. Thus, the very concept of deterrence strives to discourage offenders from committing crimes by psychologically linking crime with a severe negative repercussion that is strong enough to prevent future offenses on their account.

About the promptness of punishment, first, Beccaria believed that the shorter the time period between a crime and chastisement for the crime, "the stronger and more permanent is the human mind's association of the two ideas of crime and punishment, so that imperceptibly the one will come to be considered as the cause and the other as the necessary and inevitable result" (Beirne, 1991).

When potential benefits exceed the possible threats involved in committing a crime, offenders are often incentivised to commit crimes. Thus, raising the perils is more likely to result in crime prevention (Jacobs, 2010).

Boosting police strength and endowing them with the latest technology, enhancing the speed of arrests and rates of conviction, determining a suitable degree of punishment severity, are all measures that can be undertaken to deter potential offenders from indulging in crime (Thapa, 2022). According to Mello (2019), an additional officer prevented 2.9 violent crimes and 16.23 property crimes in the US from 2009-2013.

In a panel study of England and Wales from 1989 to 1996, a 1% rise in police force resulted in a 1.32% fall in vehicle crime and a 0.38% fall in property crime (Witt et al., 1999).

If we move onto the statistics in India, it is observed that between the years 1999 to 2005, an increased strength in the police force accounted for a 0.02 units fall in crime rates (Thapa, 2022). Whereas, a rise in the rates of conviction and arrests showed a significant rise in criminal activity which could be ascribed to the rampant status quo corruption and bureaucratic red-tapism that permeates the nation since time immemorial (Dutta et al., 2009). This can be attributed to the preposterous "positive punishment effect" (Wood, 2007), which talks about the increased tendency of former fugitives to indulge in recidivism.

Amaral et al. (2014) found mixed results on the presence of police force on different crimes at the district level from 1990-2007. There was an increase in economic and property crimes with an enhanced police strength. But violence and crime against women decreased. Not to mention, arrest rates declined the crime rates in all categories, with property crime accounting for just 0.19%.

Methodology

The objective of the study is to examine the relationship between various socio-economic variables, deterrent variables and non-violent crimes. The study employs detailed panel data for the period 2005-2020, collected from various government data portals including NCRB

(National Crime Records Bureau) and OGD (Open Government Data Platform India). To proceed with our analysis, we first calculate significance value (p) and Pearson correlation of all the explanatory variables employed in our study. Thereafter, we formed a regression model with the statistically significant variables and tested it for multicollinearity. Finally, we adjusted the model for any discrepancies and calculated a coefficient of determination to determine the significance of the relationship between explanatory and response variables.

Variable Description

1) Response Variables

Two types of non-violent crimes are included in this analysis as dependent variables: Property Crime **(PC)** and Economic Offences **(EO)**. The analysis for both these variables is conducted separately. We analyse both these variables through the incidence of cases recorded in the Crime in India (CII) report published by the NCRB.

Property Crime: People own two types of property, movable and immovable. Offences against property and their punishments are defined in Chapter XVII of Indian Penal Code in Sections 378 to 460. Mainly, ten offences are identified under Crimes against property under the IPC. Theft, Extortion, Robbery and dacoity, Criminal misappropriation of property, Criminal breach of trust, Receiving stolen property, Cheating, Fraudulent deed and disposition of property, Mischief, Criminal trespass.

Economic Offences: Economic offences are booked under the IPC in three major heads. These are criminal breach of trust; forgery, cheating and fraud; and counterfeiting. Sections 406 to 409 of IPC cover 'criminal breach of trust', Sections 231-243, 255 and 489A to 489E IPC cover 'counterfeiting' and Sections 420, 465, 468, 471, 231-243, 255 and 489A to 489E IPC cover 'forgery, cheating and fraud'.

2) Explanatory Variables

i) Deterrence Variables: Our study includes three types of deterrence variables. Namely, Arrests **(A)**, Conviction **(CONV)** and Police Population Ratio **(PPR)**. Arrests is defined as the total number of persons arrested in the country for each crime head. Conviction is included as the percentage of cases that went through a complete courtroom trial. Lastly, Police population ratio is defined as the number of police officers per lakh citizens.

ii) Socio-Economic Variables: Our Socio-Economic Variables include Unemployment **(Unemp)**, Poverty **(POV)**, Gross Domestic Product **(GDP)** and Urbanisation **(U)**. The unemployment rate is measured as the total unemployed per thousand, poverty is measured as the percentage of people below the poverty line, gross domestic product is measured as the value of final goods and services produced for the market within a country's border and urbanisation is measured as a percentage increase in the proportion of population living in urban areas.

iii) Control Variables: To ensure accuracy in our results, we employed two control variables: Higher Education **(Hed)** and Social Sector Expenditure **(SS)**. Higher education includes yearly enrollment in courses like bachelors, masters and other professional courses. Social sector expenditure is the expenditure by the government in billions (Rs.) in social services like family welfare, water supply, sanitation, welfare and unemployment insurance etc.

Preliminary Tests

Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Unemployment	5.6126875	0.643236475	5.27	7.997
GDP	1874520000000	647701000000	820382000000	2831550000000
Poverty	24.251875	10.52633093	10	37.93
Arrests	424550.3125	126680.407	321764	693943
Police Population Ratio	177.955625	17.6560777	142.25	198.56
Conviction	31.29545455	2.585202229	23.05	34.5
Higher Education	20.625	5.737304826	11	27
Social Sector	27615.6875	11387.97699	9282	44649
Urbanisation	31.9375	1.768945072	29	35
Observation Count:16				

We began our analysis by conducting a Pearson's correlation test and a p test to check the validity of our hypothesis for our two independent variables.

Firstly, a correlation analysis was performed to assess the relationship between property crime **(PC)** and our study's independent variables.

Correlation Matrix (Pearson)

	Property Stolen.	Unemployment	GDP	Poverty	Arrests	PPR	Conviction	Higher Education	Social Sector	Urbanisation
Property Stolen	1.00000000									
Unemployment	-0.21117051	1.00000000								
GDP	0.18277135	0.19607637	1.00000000							
Poverty	-0.24968528	-0.23304721	-0.9746293	1.00000000						
Arrests	-0.08971783	0.06773619	0.8380743	-0.7943446	1.00000000					
PPR.	0.33311026	0.10801059	0.8980613	-0.8573442	0.69168610	1.00000000				
Conviction	0.28193342	-0.81426437	-0.4463208	0.4854336	-0.47761954	-0.2854276	1.00000000			
Higher Education	0.34239122	0.16538436	0.9630697	-0.9665051	0.72738461	0.9175368	-0.3486329	1.00000000		
Social.Sector	0.02976738	0.11980827	0.8378129	-0.7620316	0.69605968	0.8874334	-0.3303763	0.7695540	1.00000000	
Urbanisation	0.18181422	0.34267478	0.9678907	-0.9623376	0.80803191	0.8647059	-0.5734333	0.9237384	0.82190226	1.0000000

The given matrix indicates no significant correlation between property crime and our study's independent variables. Moreover, we find very high multicollinearity between some of our independent variables further weakening our hypothesis.

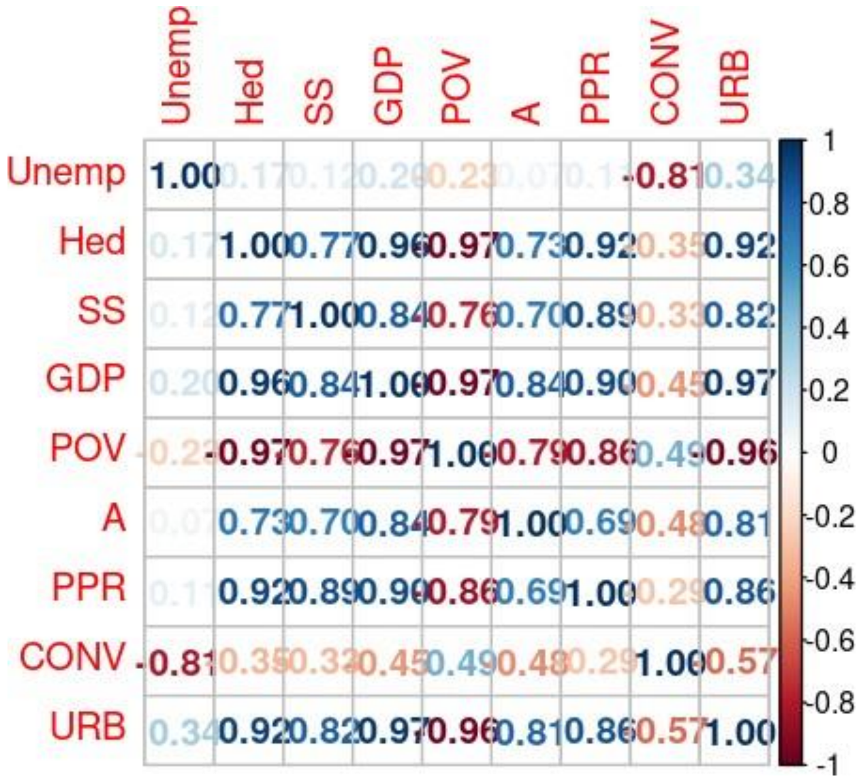


Figure 1: Correlation Plot assessing multicollinearity between independent variables

We then performed a test for statistical significance. The observations in the table below indicate that none of the independent variables has a significant relationship with property crime (all p values > 0.1). Hence, all independent variables were rejected for further analysis.

Variable	P value
Unemployment	0.4324
Higher Education	0.1942
Social Sector Budget	0.9129
GDP	0.4961
Poverty	0.351
Arrests	0.7411
PPR	0.2074
Conviction	0.2901
Urbanisation	0.5004

The analysis for Property Crime is terminated here with the conclusion of having accepted the null hypothesis and declaring that changes in property crime cannot be explained by the changes in the given independent variables.

Next, we analysed the relationship between economic offences **(EO)** and the independent variables of our study using the same steps.

	Econ Offence	Unemployment	GDP	Poverty	Arrests	PPR	Conv	Hed	SS	URB
Econ Offence	1.00000000									
Unemployment	0.09049289	1.00000000								
GDP	0.96007827	0.19607637	1.00000000							
Poverty	-0.95211666	0.23304721	-0.9746293	1.00000000						
Arrests	0.78640572	0.06773619	0.8380743	-0.7943446	1.00000000					
PPR.	0.87308963	0.10801059	0.8980613	-0.8573442	0.69168610	1.00000000				
Conv	-0.39519557	-0.81426437	-0.4463208	0.4854336	-0.47761954	-0.2854276	1.00000000			
Hed	0.95551371	0.16538436	0.9630697	-0.9665051	0.72738461	0.9175368	-0.3486329	1.00000000		
SS	0.78936027	0.11980827	0.8378129	-0.7620316	0.69605968	0.8874334	0.7695540	-0.3303763	1.00000000	
URB	0.93484095	0.34267478	0.9678907	-0.9623376	0.80803191	0.8647059	-0.5734333	0.9237384	0.8219023	1.00000000

The given matrix indicates a significant correlation between economic offences and all of our study's independent variables except conviction rate and unemployment. Here, too, we find extremely high multicollinearity between independent variables.

We then performed a test for statistical significance. The observations in the table below indicate a very strong statistical relationship between economic offences and all independent variables except unemployment and conviction rate.

Variable	P value
Unemployment	0.7389
Higher Education	<0.001
Social Sector Budget	0.0002769
GDP	<0.001
Poverty	<0.001
Arrests	0.0003027
PPR	<0.001
Conviction	0.1298
Urbanisation	<0.001

Due to their statistical insignificance, unemployment and conviction rate will be dropped from any further analysis.

To further understand our variables, we first must deal with the problem of multicollinearity. To understand the extent of multicollinearity, a variance in inflation (VIF) measure was calculated for all statistically significant variables.

Variables	Tolerance	VIF
Hed	0.01506078	66.397614
SS	0.10181243	9.821983
GDP	0.01351869	73.971638
POV	0.02112552	47.336123
A	0.18957408	5.274983
PPR	0.04970689	20.117934
URB	0.04337951	23.052358

It can be seen that all variables exhibit high degrees of multicollinearity but they cannot be completely eliminated from the analysis due to their correlation with the dependent variables. As an alternate remedial measure to eliminating the variables, we conducted a LASSO regression to disqualify the effects of multicollinearity from our analysis.

To fit the LASSO regression model, we used the glmnet() function in R. Through our analysis, we found that the lambda which produces the lowest test mean squared error is 1674.79. This helped us in obtaining a better fit for our model.

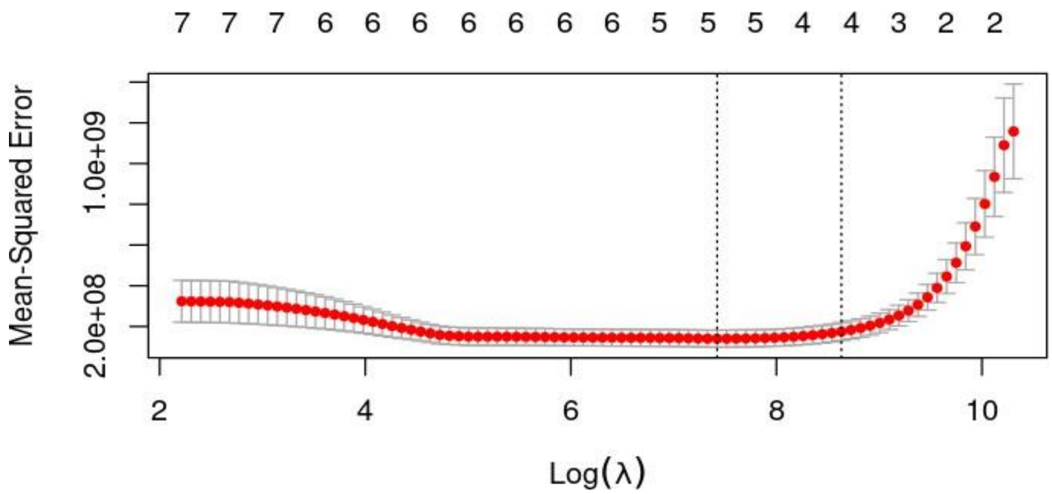


Figure 2: Cross validation to find optimal lambda

Next, we analysed the final model produced by the optimal lambda value. We obtained the following coefficients in our analysis:

(Intercept)	-2.478173e+04
Hed	2.409506e+03
SS	.
GDP	1.585017e-08
POV	1.327477e+02
A	7.759526e-03
PPR	.
URB	2.019122e+03

This analysis declared SS and PPR as non-influential and they were dropped from the model.

Lastly, we calculated the coefficient of determination of our final model which equated to 0.9340183. This outcome proves the statistical significance of our model and declares that upto 90% of variation in economic offences can be explained by changes in Hed, GDP, POV,A and URB.

Results and Inference

An empirical analysis of reported non-violent crimes, including property crimes and economic offences reported in India for the period between 2005 and 2020, and possible variables with regard to socio-economic status of the country as well as other deterrent factors was conducted. However, while they both are non-violent in nature and inflict pecuniary losses on individuals, they show varying results.

Here, unemployment and poverty show a very weak negative correlation with property stolen. Thus an increase in either or both of these variables, would result in a decrease in the occurrence of property crimes. This is contrary to majority of the literature reviewed, which suggest that some semblance of economic deprivation or a lack of a steady income source may be an underlying factor for a higher property crime rate. For instance, a review of about 30 studies from the United Kingdom, the United States, Canada, and Australia concludes that unemployment is not the sole determinant or even the major determinant of crime. They indicate that crime often increases during periods of low unemployment and that many crimes are committed by employed people and those of school age, such that unemployment is not identified as a powerful determinant of crime (Tarling, 1982).

The sixteen year period saw a significant transformation in the functioning of the police force and level of urbanisation, two factors that have direct implications for the occurrence of property crime. An increase in the level of urbanisation and the consequent resource deprivation (with unplanned urbanisation, overpopulation, etc.) can be a causal link for increase in property crimes, and is reflected in a weak positive correlation in our analysis. Meanwhile, the number of arrests has increased in the considered period, increasing the risk associated with committing the crime, and thus reducing the incentive level for the same. This is reflected in a very weak negative correlation as calculated in our analysis. Level of higher education shows a weak positive correlation with property crime. An explanation could be that individuals with higher education more often live in large cities, where as stated above, as a consequence of urbanisation, the propensity to commit a crime is higher. Further, individuals with higher education may have a higher propensity to report crimes (Lundqvist, 2018).

Overall, the occurrence of property crime displays a very weak correlation with number of arrests, the GDP of the country, social sector expenditure and level of urbanisation. We observe a weak correlation of property crime with the variables of unemployment, poverty, police per population ratio, conviction rate and higher education levels. Thus, while we have considered them to be explanatory factors for the occurrence of property crime, none of them in isolation can be a strong indicator for the same. The p-values obtained too suggest that there exists no significant relationship between property crime and any of the chosen variables (as $p > 0.1$).

Thus, for property crimes we can infer that socio-economic variables (like GDP, poverty level, etc.) deterrent factors (like police strength and functioning of the judicial system, as reflected by conviction rate, among others) do not explain the occurrence of such crime. Given that it is a highly complex phenomenon, possible criminological theories that look at the biological and sociological upbringing of an individual may be appreciable.

Meanwhile, for economic offences, barring unemployment and conviction rate, all chosen variables show a strong correlation with the occurrence of economic crimes. We however exclude them from further analysis as $p > 0.1$ signifying that there is no significant relationship with the economic offences. Of the rest, unemployment, GDP, arrests, police per population, higher education, social sector expenditure and urbanisation show a positive correlation with economic offences. This indicates that an increase in any or all of these variables will cause an increase in the occurrence of economic offences, and vice versa. Only poverty and conviction rate show a negative correlation with economic offences.

Our findings here show greater conformity with the existing literature. A possible reason for this despite its similarity in nature and incentives as for property crime might be the magnitude of the incentive for economic offence and even greater reporting, given the gravity of the crime. Economic offences not only inflict pecuniary losses but also evoke serious concern and impact on the nation’s security and governance (Bharti, 1957). The Government of India had recognized economic offences as a separate category of crimes that require special attention, to ensure swift disposal of cases and meting of punishment (Lakshmimukaran et al., 2022).

In totality, we observe that property crimes and economic offences, subsumed under non-violent crimes, have a lower chance of being explained by a certain set of chosen variables as compared to violent crimes.

Given that violent crimes have greater origins in underlying aggressions and deviances as instrumental behaviours, it is easier to find a correlation with a specific factor that might be a significant causal factor for committing the crime. Additionally, the fact that much violence stems from interpersonal (and group) conflict, it suggests that social and psychological context is more relevant for such crimes—and, socioeconomic status is thus primarily related to violent crime but not other crime. (Felson, 2009). Non-violent crimes might have more nuanced explanations, for instance, communities with high levels of temptations and/or provocations and low levels of social control could be considered risk communities for non-violent offences (Cuervo et al., 2017).

Limitations

The paper only covers the reported crimes as collected by the National Crime Records Bureau and as per Safety Trends and Reporting of Crime Survey upto 92 to 94% may not be reflected in any official record. Thus the actual occurrence or prevalence of crime exceeds that analysed in our paper. Our analysis has also been restricted by gaps in data. A shorter period of 16 years has been considered to overcome the same, and any lapses have been rectified by using the closest data available in the time series, with the assumption being that the performance of the variable may have remained the same but has not worsened in the given period. This is in line with the general observation that there has been an improvement in the performance of individual variables in the time period.

Conclusion

This study analysed the impact of socio-economic conditions on two major non-violent crime categories for India. The sample covers data ranging from 2005 to 2020.

The analysis reflected a poor relationship between socio-economic variables and property crime but a fairly strong relationship between Hed, POV, GDP, A, URB and economic offences. However, despite this relationship, it is hard to draw a parallel between criminal behaviour for non-violent crimes and socio-economic factors. These discrepant results add to an ever growing literature on the determinants of non-violent crimes. They offer us the insight that non-violent crimes should be studied through a nuanced lens, especially indeveloping countries like India.

We are thankful to Gitika Arora (Junior Editor) for the research assistance provided on this paper.

References

1. JACOBS, BRUCE A. 2010. DETERRENCE and DETERRABILITY. *Criminology* 48 (2): 417–41. https://doi.org/10.1111/j.1745-9125.2010.00191.x.

2. BEIRNE, PIERS. 1991. INVENTING CRIMINOLOGY: THE SCIENCE of MAN in CESARE BECCARIA'S DEI DELITTI E DELLE PENE (1764). *Criminology* 29 (4): 777–820. https://doi.org/10.1111/j.1745-9125.1991.tb01088.x.

3. Becker, Gary, Roland Alchian, Harold Mckean, Jack Demsetz, William Hirshliefer, Gordon Meckling, Oliver Tullock, and Williamson. 1974. Chapter Title: Crime and Punishment: An Economic Approach Crime and Punishment: An Economic Approach.‖ *National Bureau of Economic Research* ISBN: 0–87014. https://www.nber.org/system/files/chapters/c3625/c3625.pdf.

4. Ehrlich, Isaac. 1973. A QUESTION of LIFE and DEATH. https://www.nber.org/system/files/working_papers/w0018/w0018.pdf.

5. Ehrlich, Isaac. 1975. Deterrence: Evidence and Inference. *The Yale Law Journal* 85 (2): 209. https://doi.org/10.2307/795413.

6. Ehrlich, Isaac. 1996. Crime, Punishment, and the Market for Offenses. *Journal of Economic Perspectives* 10 (1): 43–67. https://doi.org/10.1257/jep.10.1.43.

7. Grogger, Jeffrey. 1991. CERTAINTY vs. SEVERITY of PUNISHMENT. *Economic Inquiry* 29 (2): 297–309. https://doi.org/10.1111/j.1465-7295.1991.tb01272.x.

8. Thapa, Ankita. n.d. Crime, Crisis and Economic Growth: An Investigation of Socio-Crime, Crisis and Economic Growth: An Investigation of Socio- Economic Determinants of Crimes in the Indian States Economic Determinants of Crimes in the Indian States. Accessed February 4, 2023. https://thekeep.eiu.edu/cgi/viewcontent.cgi?article=5926&context=theses.

9. Munich Personal RePEc Archive Determinants of Crime Rates: Crime Deterrence and Growth in Post-Liberalized India. 2009. https://mpra.ub.uni-muenchen.de/14478/1/MPRA_paper_14478.pdf.

10. Amaral, Sofia, Siddhartha Bandyopadhyay, Samrat Bhattacharya, and Rudra Sensarma. 2014. Crime and Social Conflict in India. *The Economics of Peace and Security Journal* 9 (1). https://doi.org/10.15355/epsj.9.1.46.

11. Gupta, Manish, and Payal Sachdeva. 2017. Economic, Demographic, Deterrent Variables and Crime Rate in India. Mpra.ub.uni-Muenchen.de. July 13, 2017. https://mpra.ub.uni-muenchen.de/80181/.

RESEARCH PAPERS

A STUDY OF DISRUPTION CAUSED BY COVID 19 ON BUSINESS ECOSYSTEM OF BELAGAVI CITY

By Janhavi Walvekar, Navneet Kulkarni and Soniya Sirdesai
KLS Gogte Institue of Technology, KLS Gogte College of Commerce

Guided by Dr. Roma Rodrigues, Senior Grade Professor
KLS Gogte College of Commerce, Belagavi.

Abstract

Business has been an eternal part of human lifestyle as a means of earning a livelihood in all sorts of forms since the inception of mankind. As business is an indispensable part of society, it always has an effect on any change pertaining to society. In 2019, one such massive change came in the form of SARS COVID-19 which practically shook all the constituents of society to the core. In this paper, we look at some of the factors that led to disruption in the Business Ecosystem across various sectors of the business. The Primary data is collected from various entrepreneurs, businessmen and employers from various sectors. Regression was used for the analysis of the data and secondary data was also used for comparative study. SPSS is used to make a statistical inference. The article ends with a conclusion and measures to tackle the disruptions in the Business Ecosystem.

Keywords: ecosystem, disruption, business, regression

1. Introduction

1.1 The History

Business as we know it can be traced back 3,000 years to India and China, where companies –with structures resembling sole proprietorships, partnerships and corporations. At this time, they began entering into contracts and owning property, essentially setting up the basic frameworks of business that we use today.

From 1500 AD, we see the first few government-backed companies, like the Dutch East India Company and British East India Company, taking on global business challenges and exchanging goods far away from home.

After the Industrial Revolution in 1790, business changed every 50 years or so, shaped by new inventions, trade and changing consumer habits.

Businesses and Global Trade

When infrastructure in many parts of the world began to evolve and improve, it lowered transportation costs. The business world saw an exponential increase in global trade. Today, it is unimaginable that a business would have to be constrained solely within the borders of a single country.

Eventually, business management took off as a career for people to pursue and throughout the 1900s; business potential began to appear endless.

That being said, business has not always been smooth sailing throughout history. The Great Depression in the 1930s and the financial crisis of the 1970s are just some examples of global economic setbacks that slowed down the progress of business.

Even so, these setbacks shaped the way people thought about business, its risks, but also its potential. Businesses have played a vital role in human history and society, and it is undeniably going to continue to do so in the future.

1.2 Business Ecosystem

The term "business ecosystem," first introduced by James Moore, defines the ecosystem as being made up of "customers, market intermediaries (including agents and channels, and those who sell complementary products and services), suppliers, and of course, oneself." We have extended and refined Moore's original concept to recognize the importance of creating value for customers through the provision of additional information, goods, and services and the use of the Internet and other enabling technologies.

In another instance, Moore's definition is somewhat different. Business ecosystem is an "extended system of mutually supportive organizations; communities of customers, suppliers, lead producers, and other stakeholders, financing, trade associations, standard bodies, labour unions, governmental and quasi-governmental institutions, and other interested parties. These communities come together in a partially intentional, highly self-organizing, and even somewhat accidental manner" (Moore 1998, 168). The first definition highlights interaction within a business ecosystem, while the second one emphasises decentralised decision-making and self-organisation. Moore suggests that the term 'industry' should be replaced with the term business ecosystem since nowadays you cannot divide economic activities under specific industries. Business ecosystems are based on core capabilities, which are exploited in order to produce the core product. In addition to the core product, a customer receives "a total experience" which includes a variety of complementary offers (Moore 1996, 15). The life cycle of a business ecosystem can be divided into four stages. In the birth stage, it is essential to do more than just satisfy customers. In the expansion stage, the scale-up potential of the business concept is tested. In the leadership stage, the business ecosystem reaches stability and high profitability. The final stage, self-renewal or death, is caused by the threat of rising new ecosystems (Moore 1993, 76). Moore does not, however, say anything about what happens after successful self-renewal Moore (1996, 18) suggests that the major difference between ecological and social systems is the role of conscious choice. Animals do choose their habitats, mates and behaviour. In the economic world, on the other hand, policy-makers, managers, and investors spend a lot of time understanding the situation and contemplating the possible outcomes of different choices. Although Moore claims that the word industry should be replaced with the word business ecosystem, it is apparent that Moore's business ecosystem is closer to the concepts of cluster and value network.

1.3 Business Environment

Every organization, whether business or non-business, has its environment. The organizational environment is always dynamic and ever-changing.

Changes today are so frequent and every change brings so many challenges. The managers and leaders of the organization need to be vigilant about environmental changes. The environment of an organization consists of its surroundings–anything that affects its operations, favourably or unfavourably.

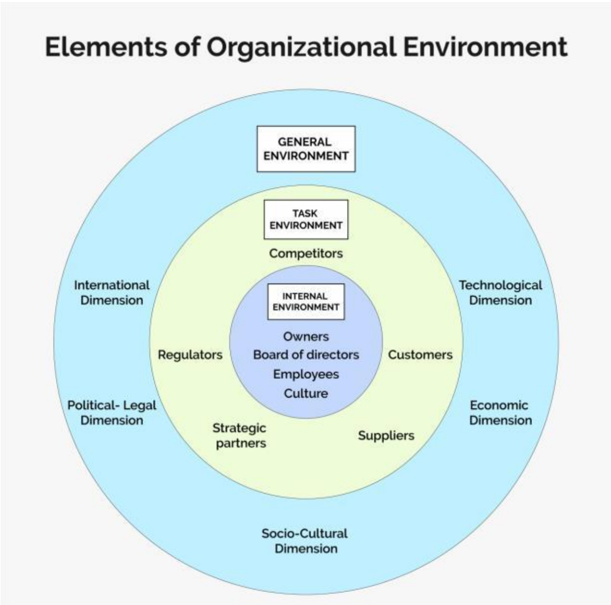


Figure 1: Elements of Organizational Environment (Source: iedunote)

Internal Environment of Organization

Forces or conditions or surroundings within the boundary of the organization are the elements of the internal environment of the organization. The internal environment generally consists of those elements that exist within or inside the organization such as physical resources, financial resources, human resources, information resources, technological resources, the organization's goodwill, corporate culture and the like.

The internal environment includes everything within the boundaries of the organization. Some of these are tangible, such as the physical facilities, the plant capacity technology, proprietary technology or know-how; some are intangible, such as information processing and communication capabilities, reward and task structure, performance expectations, power structure management capability and dynamics of the organization's culture.

Based on those resources, the organization can create and deliver value to the customer. This value is fundamental to defining the organization's purpose, and the premise on which it seeks to be profitable. Are we adding value through research and development or customer service, or by prompt delivery or by cutting any intermediary which reduces the customers' costs?

Organizations build capabilities over a long time. They consistently invest in some areas so that they can build strong competitive businesses based on the uniqueness they have created. The manager's response to the external environment would depend upon the availability and the configuration of resource deployment within the organization.

Elements of internal environment are:

1. Owners and Shareholders
2. Board of Directors
3. Employees
4. Organizational Culture
5. Resources of the Organisation
6. Organisation's image/goodwill

The task environment consists of factors that directly affect and are affected by the organization's operations.

Elements of Task Environment are:

1. Suppliers
2. Customers and Buyers
3. Competitors and New Entrants
4. Regulators
5. Substitute Products
6. Strategic Partners

The general environment includes the distant factors in the external environment that is general or common in nature. Its impact on the operations of the firm, its competitors and its customers make its analysis imperative.

We can use the PESTLE model for the identification and analysis of the factors in the general environment.

1. Political factors
2. Economic factors
3. Sociocultural factors
4. Economic factors
5. Legal factors
6. (Natural) Environmental factors

Along with these, we can add additional factors that suit the current modern business atmosphere.

1. Demographic factors
2. International factors

1.4 COVID-19 pandemic - What changed during the pandemic in the Business Ecosystem?

Coronavirus (COVID-19), a virus that grew stealthily has become one of the deadliest viruses that are killing people worldwide. This virus took birth in Wuhan city of China and since then has travelled to more than 160 countries. The World Health Organization (WHO) has declared Coronavirus as a pandemic. It has become a mass scare and is leading to the deaths of thousands of people in numerous countries including China, Italy, Iran, Spain, the US, and many more. In India, this pandemic started on 30 January 2020 by affecting an individual who had a travel history from Wuhan, China.

Impact on India's GDP

The world economy is seeing its greatest fall ever. Coronavirus has largely impacted the growth of almost every country and is responsible for the slump in GDP worldwide. Like other countries, India is also impacted by this virus but not largely. Almost every industry/sector has seen a fall in its sales and revenue. India's GDP growth has fallen to 4.7% in the third quarter of 2020.

Efforts from CII and the Govt. of India

Confederation of Indian Industry (CII) has suggested the RBI reduce the repo rate up to 50 basis points and also asked for a reduction of 50 basis points on the cash reserve ratio. The government is planning to set up an amount to support MSMEs to overcome the crisis during this phase of shutdown, cash flow difficulty, and working capital issues.

Inflation and Affected Industry

China is one of the largest exporters of many raw materials to India. Shutting down of factories has damaged the supply chain resulting in a drastic surge in the prices of raw materials. Some of the other products that have seen a rise in their prices are gold, masks, sanitisers, smartphones, medicines, consumer durables, etc. The aviation sector and automobile companies are the hardest hit among the rest. With no aeroplane landings or take-offs globally and restricted travel, the aviation and travel industry was brought to a halt.

The Slump in Share market

Share markets that include Sensex and Nifty are on nose dive since the occurrence of this pandemic (COVID-19). Sensex has declined close to 8000 points in a month. As of 12 March 2020, share market investors have lost approximately Rs. 33 lakh crore rupees in a month. Investors are advised to stay safe and invested in this virus-infected stock market. A few industries that can benefit from novel coronavirus during the time of the market crash are pharmaceuticals, healthcare, and Fast Moving Consumer Goods (FMCG).

Cash flow Issue

Due to this outbreak, almost 80% of Indian companies have witnessed cash flow difficulty and over 50% of companies are facing operations issues. As per the Federation of Indian Chambers of Commerce and Industry (FICCI), 53% of companies are impacted by COVID-19. Slow economic activity is resulting in cash flow problems eventually impacting repayments, interest, taxes, etc.

2. Literature Review

Gossain and Kandiah (1998) build on Moore's business ecosystem emphasizing the role that the internet can have in the networked information economy. They want to extend Moore's concept by recognizing the importance of creating value for customers through the provision of additional information, goods and services (Gossain and Kandiah 1998, 1). Gossain and Kandiah include only partners and suppliers in the business ecosystem and say that the "connectivity between them is the engine at the heart of the whole system" (Gossain and Kandiah 1998, 2). They see the business ecosystem basically similar to an integrated value chain, adding that the business ecosystem emphasizes close symbiotic relationships between organizations, the evolvement of those relationships and the significance of the brand (Gossain and Kandiah 1998, 4). Iansiti and Levien (2004) use business ecosystem as an analogy, which can help to describe and understand certain issues. "We found that perhaps more than any other type of network, a biological ecosystem provides a powerful analogy for understanding a business network. Like business networks, biological ecosystems are characterized by a large number of loosely interconnected participants who depend on each other for their mutual effectiveness and survival. And like business network participants, biological species in ecosystems share their fate with each other. If the ecosystem is healthy, individual species thrive. If the ecosystem is unhealthy, individual species suffer deeply. And as with business ecosystems, reversals in overall ecosystem health can happen very quickly." (Iansiti and Levien 2004, 8-9) Features of a business ecosystem include fragmentation, interconnectedness, cooperation and competition (Iansiti and Levien 2004, 35).

Mitleton-Kelly (2003, 31) argues that functioning like a social ecosystem is a critical success factor for any organisation. "When firms and institutions cease to function like a community or social ecosystem, they may break down" (Mitleton-Kelly 2003, 31). Mitleton-Kelly (2003, 23), organizations are always co-evolving within a social ecosystem. In Mitleton-Kelly's social ecosystem, "each organisation is a fully participating agent, which both, influences and is influenced by the social ecosystem made up of all related businesses, consumers, and suppliers, as well as economic, cultural, and legal institutions" (Mitleton-Kelly 2003, 30). In defining a social ecosystem, the key point is interdependence among the entities within it (Mitleton-Kelly 2003, 31). One important phenomenon within a social ecosystem is co-evolution. Mitleton-Kelly (2003, 29) emphasises that co-evolution cannot happen in isolation, but it must happen within an ecosystem.

Hypothesis:

H_0 (A): There is no impact of COVID-19 on the Cash Inflow of businesses.

H_1 (A): There is an impact of COVID-19 on the Cash Inflow of businesses.

H_0 (B): There is no impact of COVID-19 on Employee Retention of businesses.

H_1 (B): There is an impact of COVID-19 on Employee Retention of businesses.

H_0 (C): There is no impact of COVID-19 on the Creditor's Turnover of businesses.

H_1 (C): There is an impact of COVID-19 on the Creditor Turnover of businesses.

H_0 (D): There is no impact of COVID-19 on Debtors' Turnover of businesses.

H_1 (D): There is an impact of COVID-19 on Debtors' Turnover of businesses.

H_0 (E): There is no impact of COVID-19 on the Demand for Products of businesses.

H_1 (E): There is an impact of COVID-19 on the Demand for Products of businesses.

3. Research Methodology

In order to understand the impact of SARS COVID-19 on the business ecosystem, primary data is collected. The respondents are entrepreneurs regardless of the levels, who have a direct relation with the business ecosystem. The data is collected by means of Google Forms and compared in simple table form. The independent and dependent variables are analysed using multiple variable regression analysis. Secondary data is also used for analysis and further inferences allied with this study.

Research design

This is a conclusive research based on a sample survey. Primary data is collected from local respondents. The sample size is 117 based on the Convenient Sampling Method. The inductive approach is used to analyse and make a generalised inference. This study tries to understand the effect of SARS COVID-19 on the Business Ecosystem.

4. Data analysis

As mentioned, 117 entrepreneurs responded to the Google Form circulated and they were asked 10 questions, which covered all the aspects of the Business Ecosystem and put forth themost important question–What was the magnitude of effect on each of the aspects? The parameters were as follows:

Change in demand for product and service

A product or service can be said to be in demand when a number of people desire to buy a particular product or avail of a particular service for a period of time in the market. There are different factors that influence the market demand for a product and service such as the income of the person, expectations of the people, price of the product and service and price ofother related products and services. In 2019, India came across cases of coronavirus. The outbreak of coronavirus started making a huge impact on the nation. The government of India announced a lockdown in the nation to control the rising cases of COVID-19. The market was still and a huge number of employees lost their jobs. The salaries of the people were reduced. People started gaining clarity about their needs and want. The demand for necessary products was stable, whereas some businesses started witnessing a fall in the market demand for their products and services.

Effect on cash inflow through trade receivables

When a business receives cash from outside, through sales, investing, financing and operating, it is called cash inflow. It is the inward flow of cash into the business. Trade receivables refer to the amounts to be received in near future from the debtors for their purchases from the business. During COVID-19, the operations of businesses were affected on a large scale which has had a huge impact on the inflow of cash through trade receivables. Since the businesses were operating to their minimum and few to their zero extents, cash circulation was difficult. Increased trade receivables show weaker cash inflow, whereas, decreased trade receivables show stronger cash inflow. A decrease in the inventories was an alarming factor to this as the number of sales had dropped down.

Effect on cash outflow through trade payables

When a business pays cash to external parties through purchases, operations, etc., it is called cash outflow. It is the outward flow of cash from the business. Trade payables refer to the amounts to be paid in near future to the creditors for purchases made from them. During COVID-19, the operations of the businesses were affected massively which affected the outflow of cash through trade payables. Since the businesses were operating to their minimum and few to their zero extents, cash circulation was difficult. Increased trade payables show a weak cash outflow and decreased cash outflows show a healthier cash outflow. Less availability of cash to restock inventory is one of the threats for the circulation of cash.

Employee retention during COVID-19

A company designs some policies to benefit their talented employees with the objective of making them stick to the company for a longer period of time. Employee retention is the ability to prevent the most productive employees from shifting to other organisations through competitive pay rates, career opportunities, healthy work environment, compensation etc. Along with this, the main aim of a company is to minimize employee turnover and attain sustained productivity flow. But during the time of the COVID-19 pandemic, employee retention was a hot topic across the globe. The overnight shutdown of the company operations forced the companies to take drastic decisions regarding employees. Several companies almost washed off a huge number of employees as it was difficult to even pay monthly salaries to their employees. The disruption in cash flows which was a result of the lockdown affected the employment sector in a harsh way.

Financial stability

A company is said to be financially stable when it is capable of carrying out its financial intermediary functions adequately on its own such as raising funds, allocating resources, payment of dividends to shareholders, maintenance of efficient cash flows and contribution towards a market economy. Financial stability is important in order to avoid pricing variability in the market and the development of businesses along with the economy. The financial stability of the businesses in India was shaken amidst COVID-19 as the supply of materials was interrupted, and the logistics were hampered which affected the production process. This resulted in the downfall of business turnover. When one aspect of business operations is disrupted, it gradually affects the business's financial position. The economy suffered a huge loss because of this.

Project management

Businesses that were functioning on a project basis have faced a setback due to COVID-19. The projects under work, which were supposed to be executed in the months of March and April 2020, had been postponed for an indefinite period and some of which were even cancelled. The material and labour used in the process till the date of lockdown was announced in India were kept on hold and most of which had been either ruined or become useless by the time the next process was to be started when the lockdown was lifted. This spoilage has resulted in a loss for the businesses and the uncertainty of other projects increased. Since project management requires labour and most of them had travelled back to their hometowns, it was difficult for the project managers to execute the projects post-lockdown.

Financial status (pre and post-COVID-19)

Financial status or financial position of a business is a measurement of its financial performance. The statements which help in ascertaining the financial status of a business are its balance sheet, profit and loss account and cash flow statement. The Indian markets were functioning at their regular capacity till the end of 2019. Businesses were working at their normal volumes till the outbreak of COVID-19 at the end of 2019. Since there was a break in the operations of the business, the inflow and outflow of the cash stopped affecting the cash flow statement further impacting the financial position of the business. The sudden halt in the functions of a business hampered the economy. More than 50% of the businesses were stopped due to the pandemic. All in all, leading to a downslide in economic growth.

8. Result of data analysis

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.614[a]	.377	.549	.630
a. Predictors: (Constant), Employee Retention, Decrease in Demand, Debtor Turnover, Cash Inflow, Creditor Turnover				

In the above table. **We can see that the adjusted r square value is more than 0.5, suggesting that more than 50% of the factors affecting the business ecosystem have beenconsidered while conducting the research.**

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	**Regression**	26.658	5	5.332	13.416	.000[b]
	Residual	44.111	111	.397		
	Total	70.769	116			
a. Dependent Variable: Financial Stability						
b. Predictors: (Constant), Employee Retention, Decrease in Demand, Debtor Turnover, Cash Inflow, Creditor Turnover						

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.967	.500		1.935	.055	-.023	1.958
	Decrease in Demand	-.139	.079	-.150	-1.767	.080	-.295	.017
	Debtor Turnover	.143	.085	.144	1.686	.095	-.025	.312
	Cash Inflow	.184	.090	.167	2.035	.044	.005	.362
	Creditor Turnover	.249	.084	.288	2.962	.004	.082	.416
	Employee Retention	.340	.097	.306	3.505	.001	.148	.532
a. Dependent Variable: Financial Stability								

A multiple regression was run to predict financial stability of respondents. The above table shows that variables namely Cash Flow, Creditor turnover and Employee retention were statistically significant and predicted financial stability, $F(5,111) = 13.416$, $p < .05$, r value is 0.549

So, if we compare the sig value, values for cash inflow, creditors turnover and employee retention is less than **0.05**, Hence we **reject the null hypothesis (A, B, C)** and it is statistically proved that those three factors had **significant impact** on business ecosystem.

For Demand and Debtor Turnover, we see that the sig value is above 0.05 and hence we accept the null hypothesis in those two cases **(D and E).**

9. Suggestions to tackle disruptions

9.1 Steps and measures by the Government of India

To avoid the large impact of this outbreak, India has taken some measures that include corporate tax cuts, increased moratorium period, fiscal stimulus up to Rs. 2 lakh crore to needy people through their Aadhar based benefit transfer. Presently, the best option for investors is to invest in mutual funds or Systematic Investment Plans (SIPs). With the help of SIPs, people can invest a fixed amount every month in various mutual fund schemes available in today's financial market.

The government of India started taking measures from the start of this pandemic.

Some of the key measures taken by the Government include:

1. Orders of self-isolation or self-quarantine
2. Travel restrictions
3. Sanitizing on a large scale
4. Disabling group gatherings
5. Closing inter-state borders
6. Screening at domestic and international airports
7. Banning entry of foreigners
8. Denial of any form of Visa to any country
9. Helping in the recovery of several positive cases
10. Increasing the number of testing centres
11. Lock-down of cities, districts, and even states
12. Shutting down schools, colleges, temples, malls, shopping centres, local bazaars, gymnasiums, cinema halls, and various facilities of public gatherings
13. Providing work-from-home options for employees and much more

As of now, there is no light at the end of the tunnel and people are facing hard times. Indian economy is not highly impacted, as compared to economies of nations like China, Spain, Italy, Iran, or the USA. As India started taking early precautionary measures to prevent the spread of coronavirus.

The financial year 2019-2020 is ended and during this phase, the Indian economy has faced testing times in which instant or fast recovery is not possible by any means. To overcome this financial crunch situation or to reduce their loss, entrepreneurs and MSMEs can opt for business loans as per their requirements.

However, with people's persistent patience, will and determination, we can fight back and win over COVID-19 disease. Every individual on this planet has to stand and fight against this pandemic. People need to remove coronavirus from its roots and start to rebuild the Indian economy from the point it was fallen.

9.2 RBI announces Rs. 50,000 crore funding support to fight COVID

May 2021: RBI Governor, Shaktikanta Das introduced new measures to tackle the second wave of COVID-19 in India. The Governor announced on-tap liquidity funding of Rs 50,000 crore, as a credit facility to be offered to banks, NBFCs, and other lending institutions. This funding support is in the form of incentivized loan schemes that shall be offered to enterprises engaged in the healthcare, manufacturing, and logistics sectors. Vaccine manufacturers, hospitals, medical equipment makers, as well as patients shall be offered loan schemes by the private and public sector banks, NBFCs, Micro Finance Institutions (MFIs), and Small Finance Banks (SFBs).

10. Conclusion

Though the pandemic lasted for more than a year, its effects are going to last for an indefinite period of time. While a few industries like that the pharmaceutical industry and telecommunication boomed, industries like hospitality, and entertainment saw a huge setback. Many sectors of the economy have faced diverse changes. One such area which has faced changes in various aspects is entrepreneurship. As discussed above, entrepreneurship has seen changes in the demand for products and services, cash inflow and outflow, employee retention, financial stability, project management and overall changes in the financial status of the business over time. While the demand for various products and services declined due to COVID-19, it stopped the businesses of various sectors which directly hampered the cash flow in and out of the business. Since there was no business, it was difficult for employers to pay their employees as there was no work. It was burdensome for them to retain their employees during this period. The finances were trembling leading to financial instability. Execution of projects planned pre-COVID-19 became difficult and most of them resulted in losses due to cancellation. The financial status of the businesses was affected heavily due to the unannounced pandemic; the effects of which are seen to date. Along with the disruptions that occurred due to the unexpected encounter with coronavirus, the research also provides information about the measures taken to manage the crucial conditions in the country. The government of India contributed its involvement in reshaping of scattered business ecosystem by corporate tax cuts, increased moratorium period, fiscal stimulus up to 2 lakh crore etc. A new system of working was discovered termed ‘work from home’. The government also provided relaxation as per GST and custom, relaxation as per corporate laws, relaxation as per labour laws etc. The strenuous survival of the Indian economy has forced India to encourage start-ups and enlighten entrepreneurship skills among the youth of the country. The government also facilitated loans to setup enterprises and expand businesses in India by reducing the repo rate by 0.75 basis points. All in all, the government and entrepreneurs have come together to work with various stakeholders to boost the financial condition of the business community and the people associated with it.

11. References

1. Coronavirus (COVID-19) Impact on Indian Business and Economy (paisabazaar.com)
2. Gossain, S.; Kandiah, G. Reinventing Value: The New Business Ecosystem. Strategy and Leadership. Vol. 26(5) (1998), pp. 28-33.
3. History of Business and Evolution of Business. Immerse Education
4. Internal and External Environment Factors that Influences Organizational Decision Making (iedunote.com)
5. Iansiti, M.; Levien, R. The Keystone Advantage: What the New Dynamics of Business Ecosystems Mean for Strategy, Innovation, and Sustainability. Harvard Business School Press, (2004) 225p.
6. Kandiah, G., and Gossain, S. Reinventing value: The new business ecosystem. Strategy and Leadership, 26(5) (1998).
7. Mitleton-Kelly, E. Ten Principles of Complexity and Enabling Infrastructures. In MitletonKelly, E. (eds.) Complex Systems and Evolutionary Perspectives on Organizations: The Application of Complexity Theory to Organizations. Pergamon, Amsterdam. (2003) pp. 23-50.
8. Mitleton-Kelly, E. Personal discussion on 11th November, 2004.
9. Moore, J.F. Predators and Prey: The New Ecology of Competition. Harvard Business Review. Vol. 71(3) (1993), pp. 75-83.
10. Moore, J.F. The Death of Competition: Leadership and Strategy in the Age of Business Ecosystems. New York, Harper Business, (1996) 297p.
11. Moore, J.F. The Rise of a New Corporate Form. Washington Quarterly. Vol. 21(1) (1998), pp. 167-181.
12. What Is a Business? (investopedia.com)

ANALYSING THE IMPACT OF SOCIAL SECTOR EXPENDITURE ON HUMAN DEVELOPMENT AND GROWTH: A STATE-LEVEL STUDY IN INDIA

By Pragna Dutt, Elina Das, Anik De
Jadavpur University

Abstract

Investment in human capital is considered as one of the most important pillars of economic growth in any economy. A positive correlation has been found in many cases between the government expenditure in the social sector and human capital development.

In this paper, we aim to reinstate the positive correlation between government expenditure in the social sector and Human Development Index on one hand and between Human Development Index and economic growth on the other for major Indian states in the period 2005-06 to 2018-19. Furthermore, we try to examine whether there is a two-way relationship between expenditure in the social sector and economic growth.

We have proved the theoretically valid framework of the relation between social sector expenditure, Human Development Index and economic growth statistically in the case of India.

Keywords: human development index, economic growth, social sector expenditure, state level analyses, holistic growth, Indian economy

Introduction

"Sustained and inclusive economic growth can drive progress, create decent jobs for all and improve living standards" – United Nations.

In the recent past, focus has shifted from merely boosting economic growth to a more holistic concept of economic development. It is evident that human capital development is a guaranteed way of attaining consistent and sustainable economic growth which translates intoeconomic development. The Human Development Index, or HDI, embodies Amartya Sen's "capabilities approach" to understanding human well-being, which emphasises the importance of "ends" (like a decent standard of living) over "means" (like income per capita). "It is believed that HDI is a credible index for providing us with an alternative view of human development" [2]. Keeping the importance of HDI as an indicator of overall welfarein the economy, we see how social sector expenditure affects it.

In this paper, we have considered social sector expenditure as the expenses on education, health, water supply, sanitation, nutrition, family welfare, housing, urban development, art and culture, sports, relief for calamities, social security and labour welfare [19].

Firstly, we aim to see whether HDI and social sector expenditure are related or not. If they are, then what is the approximate nature of this relation.

Coming to our second objective; in the context of HDI and economic growth, from Growth and Human Development: Comparative Latin American Experience [17], we know that HDI and economic growth are related. The HDI affects the GDP per capita of a country. A higher HDI indicates better access to healthcare facilities, improved attainment of education and a higher quality of life. Robust human capital increases the avenues for economic growth. Economic growth influences the GDP per capita, which further boosts the HDI.

We wish to examine the correlation of HDI and GDP in the context of Indian states under the period of consideration. Hence, we analyse the relation between HDI and growth rate of gross state domestic product or GSDP for four years, 2005- 06, 2010-11, 2015-16, and 2018-19.

We can consider our model to be made up of two chains, one linking social sector spending with HDI and another joining HDI and economic growth. From the available data we examine whether the ends of these straight chains can be connected, that is, we aim to establish if social sector spending has any bearing on economic growth or not.

Literature Review

With regards to HDI and economic growth, existing literature [17] [18] [21] have established a two-way relation between these two variables. "The causal relationship between economic growth and human development becomes a mutually influential relationship", Elista and Syahzuni [6]. For analysing the relation between social sector expenditure and HDI ofindividual states, [15] studied the government financing of social sectors from 1974-75 to 1990-91. In [7], Goswami and Bezbaruah has considered the period of 1990-91 to 2009-10.In [13] Mittal analysed the trends in the expenditure and HDI for the period 2000-01 to 2014-15. "It is observed that there is a positive relation between social sector spending and the human development index of the states", Mittal [13].

Economic Growth and Economic Development

Economic growth can be defined as the increase or improvement in the inflation-adjusted market value of the goods and services produced by an economy over time. Statisticians conventionally measure such growth as the percentage increase in the real gross domestic product, or real GDP. Previously, policymakers and economists often treated economic growth as an all-encompassing unit to signify a nation's development, combining its economic prosperity and societal well-being. Economic growth had emerged as both a leading objective, and indicator, of national progress in many countries, even though GDP was never intended to be used as a measure of wellbeing. As a result, policies that resulted in economic growth were seen to be beneficial for society. However, with time it was observed that economic growth falls short of measuring the holistic development of the economy and the wellbeing of the society. This is because economic growth is merely a measure of the increase in real GDP of the nation as a whole, and it does not take into account income inequality, environmental quality, levels of health and education, unemployment rate, gender discrimination and other such factors which directly determine the standard of living and wellbeing of the society.

Thus, over the last two decades the focus has been shifted to the much broader concept of economic development. Economic development is defined as the process by which the economic wellbeing and quality of life of a nation can be improved according to the targeted goals and objectives. In Amartya Sen's words, economic growth is the "means" of attaining economic development which is the "ends" or the objective of the economy. The broader concept of economic development has been adopted by the United Nations, first through the Millennium Development Goals (MDGs) of 2000, and then through the Sustainable Development Goals (SDGs) of 2015. The eight MDGs were expanded and modified to seventeen SDGs, which include conventional economic measures such as income growth and income poverty, but also inequality, gender disparities, and environmental degradation [10] The conceptualization of this all-encompassing "economic development", has been one of the sure advances during the past decade of thinking, and represents a move toward a "new enlightenment" in assessing trajectories of achievement.

Human Development

The United Nations Development Programme (UNDP) defines human development as "the process of enlarging people's choices", said choices allowing them to "lead a long and healthy life, to be educated, to enjoy a decent standard of living", as well as "political freedom, other guaranteed human rights and various ingredients of self-respect". Thus, human development is about much more than economic growth, which is only a means of enlarging people's choices. Fundamental to enlarging these choices is building human capabilities—the range of things that people can do or be in life. Capabilities are "the substantive freedoms [a person] enjoys to lead the kind of life [they have] reason to value". The concept of human development grew out of global discussions on the links between economic growth and development during the second half of the 20th century. Debates to go beyond economic growth paved the way for the human development approach, which is about expanding the "richness of human life, rather than simply the richness of the economy in which human beings live". It is an approach that is focused on creating fair opportunities and choices for all people. Human development is considered to be a guaranteed way of attaining sustainable development.

<u>Human Development Index</u>

Human development is measured with the help of the Human Development Index (HDI). The Human Development Index (HDI) is a summary measure of achievement in three key dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. The HDI is the geometric mean of normalised indices for each of the three dimensions. The health dimension is assessed by life expectancy at birth, the education dimension is measured by the mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age. The standard of living dimension is measured by gross national income per capita. The HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing GNI. The scores for the three HDI dimension indices are then aggregated into a composite index using geometric mean.

Figure 1: Construction of the Human Development Index

<u>Importance of Social Sector Expenditure</u>

Social sector expenditure can be defined as the total expenditure incurred by the government on social promotional and protective measures. It includes the expenses on education, health, water supply, sanitation, nutrition, family welfare, housing, urban development, art and culture, sports, relief for calamities, social security and labour welfare. Social sector expenditure is a key instrument for the development of the country.

Public spending on the social sector is given importance for at least two reasons. First, the extent of deprivation in developing countries like India is too large to be left to market forces alone to take care of sufficient spending required for human development. Second, the poor utilise government services to a greater extent as compared to the richer households and thus public spending on the social sector helps in attaining an equitable distribution of opportunities. Social sector expenditure leads to human capital development and thus helps in attaining sustainable development in an economy.

Theoretical Framework

The objective of this study is to analyse the relation between social sector expenditure, human development and economic growth. It can be divided into three sections:

1. **The relation between social sector expenditure and human development:** Intuitively, it follows from the previous discussions that social sector expenditure affects human development positively- an increase in the per capita social sector expenditure should lead to an increase in the HDI. We shall check the validity of this intuition in the case of the major Indian states over the period of 2005-2018 in our study.

2. **The relation between human development and economic growth:** The quintessential notion regarding the relation between human development and economic growth is that economic growth is the "means" to attain human development which is the "ends" in this regard. However, the paper Growth and human development: comparative Latin American Experience by Gustav Ranis and Frances Stewart suggests that the converse of this is also true—human development can lead to consistent economic growth. This is intuitively consistent as well—increase in human development improves the productivity and efficiency of human capital which is the core of all economic activity and thus it leads to increase in economic growth. Thus, a two-way relationship is observed between human development andeconomic growth which we try to statistically analyse in our study.

3. **The relation between economic growth and social sector expenditure:** Here again a two-way relation between economic growth and social sector expenditure relationship is evident between economic growth and social sector expenditure.

Firstly, an increase ineconomic growth results in an increase in the social sector expenditure because higher GDP would mean that the government will have more funds available to spend on the social sector.

However, the converse of this relation is not so simple. Intuitively, an increase in social sector expenditure should lead to higher economic growth through the human development channel. However, the review of studies on the relationship between public expenditure and economic growth observed mixed evidence. Public spending in the social sector positively influences economic development by creating socially inclusive, healthy, and economically solid societies and enhances productivity [14] [3] [4] [5] [11] [20]. There is a negative causal relationship between state spending on education and health on economic growth in African nations, mostly due to corruption, bureaucratic defects, and under-investment [9]. The studiesmade by Kormendi and Meguire [12] witnessed no relationship between social sector expenditure and economic growth. In our study we will explore the nature of the relationship between social sector expenditure and economic growth for the major Indian states over the period of 2005-2018.

To summarise it all, in our study we have analysed the validity of the following flow diagram for the major Indian states over the period of 2005-2018.We have arrived at this flow diagram intuitively from referencing the existing theory and we try to statistically prove it in this study.

Figure 2: Theoretical framework of the study

Data Source and Variables Used

All data used in the study is secondary data, collected from the Handbook of Statistics of the Reserve Bank of India, [22] The Census of India and from the Annual Publications of the Ministry of Health and Family Welfare of India. The variables used and their descriptions are as follows:

- **GSDP:** The Gross State Domestic Product calculated at constant prices with base year 2011-12. The GSDP for 4 years has been considered (2005-06, 2010-11, 2015-16, 2018-19). The unit is in Rs. crore.
- **GSDPP:** The Gross State Domestic Product per capita of each state, calculated by dividing the Gross State Domestic Product by population of the states in the corresponding year. The unit is in Rs.
- **HDI:** The Human Development Index has been considered for 28 Indian states, for the years 2005-06, 2010-11, 2015-16, 2018-19. Its value ranges from 0 to 1.

- **SSE:** The Social Sector Expenditure has been considered for 4 years: 2005-06, 2010-11, 2015-16, 2018-19. It comprises the spending on elementary education, public health, safe drinking water, rural sanitation, and family welfare [23]. The unit is in Rs crore.
- **SSEP:** This is the Social Sector Expenditure per Capita of each state, calculated by dividing the Social Sector Expenditure by the population of the states in the corresponding year. The unit is in Rs.
- **LSSEP:** This is the Social Sector Expenditure, scaled down by the logarithmic function.

Methodology

The panel data was pooled and analysed. We used the correlation statistic on the pooled data to establish the relationship between the GSDP, SSE and HDI. To further examine the extent of the relationship and to estimate the marginal effect of GSDP, SSE, as well as LSSE on each other, we performed a pooled regression using OLS on the panel data. Our study can be broken down into three sections:

1. Finding the relationship between Social Sector Expenditure Per Capita and Human Development Index
2. Finding the relationship between Human Development Index and Economic Growth, represented by Gross State Domestic Product
3. Finding the relationship between Social Sector Expenditure and Economic Development

The Relation between Social Sector Expenditure and Human Development Index

In our study, we aim to establish the extent to which expenditure in the social sector by the government can bring about an improvement in the Human Development Index. We have correlated the values of Human Development Index and Per Capita Social Sector Expenditure for the pooled data, to find the extent to which the two variables are related. The following results were obtained.

```
. corr LSSEP HDI
(obs=112)

             |    LSSEP      HDI
-------------+------------------
       LSSEP |   1.0000
         HDI |   0.6416   1.0000
```

Figure 3: The correlation coefficient between HDI and the logarithm of Per Capita Social SectorExpenditure is 0.6416

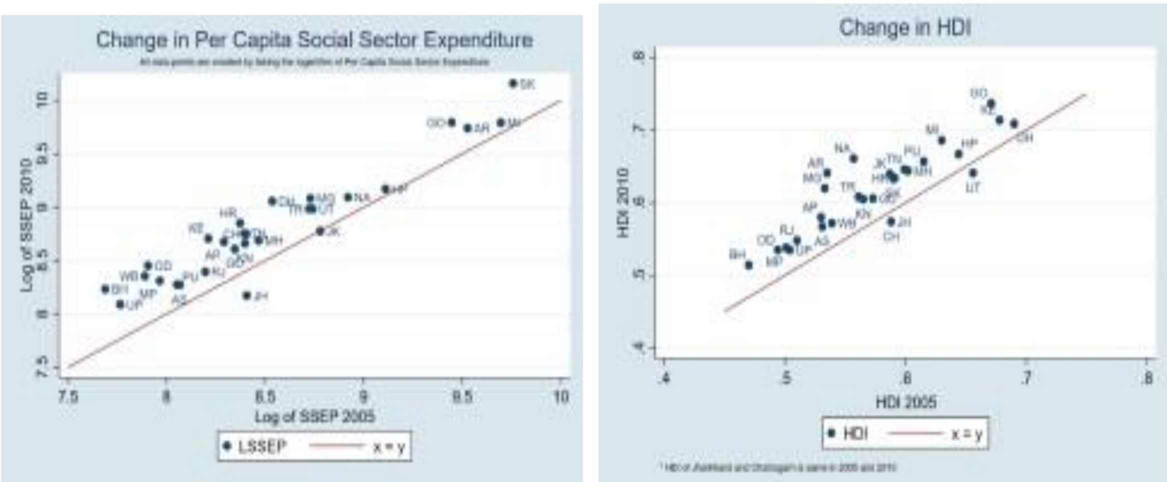
The correlation coefficient of 0.6416 signifies a moderate positive correlation between Human Development Index and the logarithm of Per Capita Social Sector Spending. A possible interpretation of this might be that as Social Sector Expenditure per capita increases, the HDI increases. Although the extent of relation can be determined by the correlation coefficient, it is not possible to determine the direction of the relationship, that is, if an increase in the per capita Social Sector Expenditure causes the increase in Human Development Index or if an exogenous increase in Human Development Index, bolsters economic growth which in turn increases the per capita Social Sector Expenditure. We must, however, take into account certain instances in which such a positive correlation does not hold a negative change in per capita Social Sector Expenditure and does not result in a negative change in HDI.

To analyse this, we have constructed three scatter plot graphs, each consisting of a forty-five-degree reference line to measure the initial HDI, final HDI and the change in HDI for the four years. We have carried out a similar exercise in regards to the Social Sector Expenditure. The forty-five degree represents the locus of points for which the HDI and per capita Social Sector Expenditure are the same for two subsequent years. Any point above the line represents the states for which HDI or per capita Social Sector Expenditure have increased for two subsequent years and any point below the line represents the states for which HDI or per capita Social Sector Expenditure have decreased for two subsequent years.

The following are the observations:

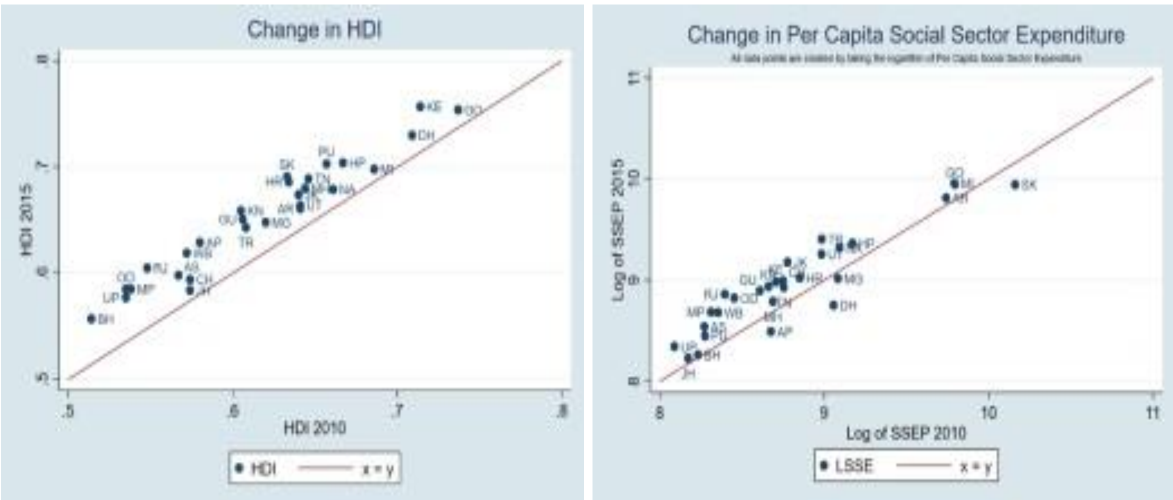
- From Figure 4, we can see that although there was an increase in per capita Social Sector Expenditure for Uttarakhand from 2005-06 to 2010-11, its Human Development Index decreased from 2005-06 to 2010-11. This is in contrast to the positive correlation which was calculated from the data. Another state, in which such an increase in per capita Social Sector Expenditure is contrasted by a decrease in HDI is Chhattisgarh.

- From Figure 5, we can see that for the years 2010-11 and 2015-16, the states of Sikkim, Delhi, Andhra Pradesh and Meghalaya show deviations from the positive correlation between per capita Social Sector Expenditure and Human Development Index.
- From Figure 6, we can see that for the years 2015-16 and 2018-19, although there were no deviations from the expected positive relation between per capita Social Sector Expenditure and Human Development Index, some states did not show an increase in Human Development Index, even though they experienced a positive growth in per capita Social Sector Expenditure.



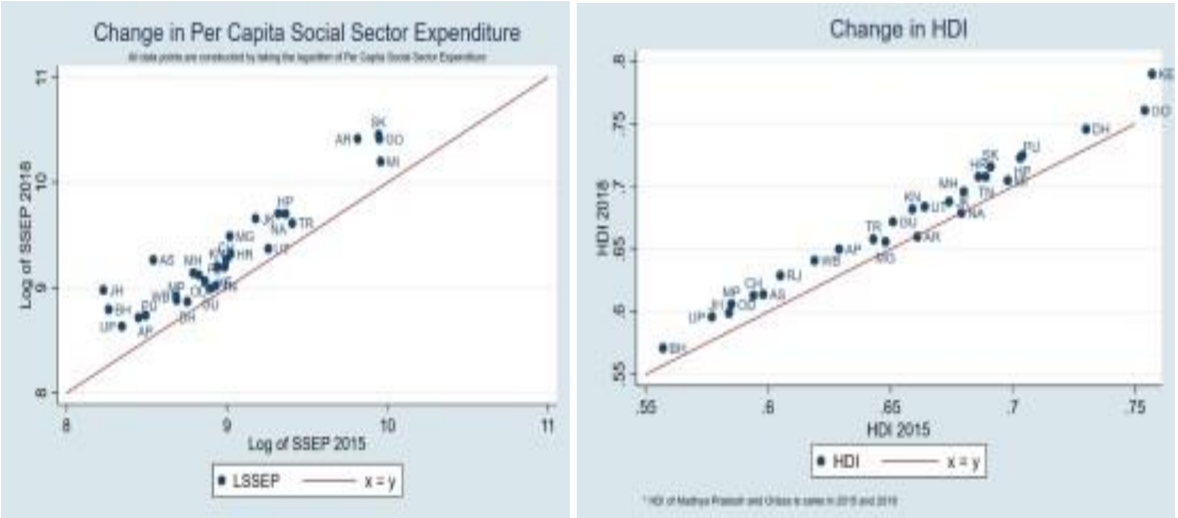
(a) HDI (b) LSSEP

Figure 4: The relationship between HDI and LSSEP for 2005-06 and 2010-11



(a) HDI (b) LSSEP

Figure 5: The relationship between HDI and LSSEP for 2010-11 and 2015-16



(a) HDI (b) LSSEP

Figure 6: The relationship between HDI and LSSEP for 2015-16 and 2018-19

Relation between Human Development Index and Gross State Domestic Product

The relationship between Human Development Index and Economic Growth has been already established as a two-way relationship [16]. We have correlated the values of Human Development Index and Gross State Domestic Product and the values to find the extent to which the variables were related. The results were as follows.

```
. corr HDI GSDP
(obs=112)

             |     HDI     GSDP
-------------+------------------
         HDI |  1.0000
        GSDP |  0.1067   1.0000
```

Figure 7: The coefficient of correlation between HDI and GSDP is 0.1067.

The correlation coefficient of 0.1067 signifies a weak positive correlation between Human Development Index and Gross State Domestic Product. This weak correlation can be substantiated by stating the economy of Sri Lanka. The Human Development Index of Sri Lanka was 0.782 in 2019, an increase of 24.3% from 1990. The Gross Domestic Product of Sri Lanka on the other hand has grown only by 6.4% from 1990 to 2019.

Relation between Social Sector Expenditure and Gross State Domestic Product

To estimate the relationship between Social Sector Expenditure and Economic Growth, we have performed correlation analyses as well as regression analysis. We have correlated the Social Sector Expenditure (SSE) with Gross State Domestic Product (GSDP) as well as Social Sector Expenditure per capita (SSEP) and Gross State Domestic Product (GSDP) to check for any contradictory relation between the variables. The results were as follows. The correlation coefficient of -0.3107 signifies a weakly negative relation between SSEP and GSDP. The correlation coefficient of 0.8777 signifies a strongly positive relation between SSE and GSDP.

The contrast in the coefficients can be explained by taking the growth rate of the population into consideration. The positive correlation between Gross State Domestic Product and Social Sector Expenditure states that an increase in one variable must indicate an increase in the other variable. The correlation does not state the order of increase, that is if an increase in Gross State Domestic Product must be followed by an increase in Social Sector Expenditure or if an increase in Social Sector Expenditure leads to an increase in Gross State Domestic Product.

. corr SSEP GSDP
(obs=112)

	SSEP	GSDP
SSEP	1.0000	
GSDP	-0.3107	1.0000

(a) SSEP and GSDP

. corr SSE GSDP
(obs=112)

	SSE	GSDP
SSE	1.0000	
GSDP	0.8777	1.0000

(b) SSE and GSDP

Figure 8: The comparison of correlation coefficients between SSEP, SSE and GSDP

When considering the correlation between Social Sector Expenditure per capita and Gross State Domestic Product, the negative correlation can be explained by an increase in the population. An increase in population increases the number of citizens between whom the Social Sector Expenditure is distributed. Thus, if the growth rate of the population is larger than the growth rate of the Gross State Domestic Product, the per capita Social Sector Expenditure decreases instead of increasing.

Regression

To estimate the extent of the effect of GSDP on SSE and SSEP, as well as the extent of the effect of SSE and SSEP on GSDP we formulated two regression models based on the pooled data and not taking into account the heterogeneity of the between group data.

GSDP and SSE

Pooled OLS Model: $GSDP = \hat{\beta}0 + \hat{\beta}1SSE$

The pooled ordinary least square regression result signifies that SSE is significant in explaining GSDP and has a positive coefficient of 10.88, that is, for every one unit increasein Social Sector Expenditure, the Gross State Domestic Product increases by 10.88 units. Since the data comprises GSDP and SSE for various states across 4 time periods, we use panel data regression to take into account the heterogeneity in the data, that is, the variation of the data between the states.

Two types of panel data regression were performed, one with fixed effects and one with random effects.

```
. reg GSDP SSE
```

Source	SS	df	MS
Model	6.7826e+12	1	6.7826e+12
Residual	2.2139e+12	106	2.0886e+10
Total	8.9966e+12	107	8.4080e+10

Number of obs	=	108
F(1, 106)	=	324.74
Prob > F	=	0.0000
R-squared	=	0.7539
Adj R-squared	=	0.7516
Root MSE	=	1.4e+05

GSDP	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
SSE	10.88794	.6041953	18.02	0.000	9.690069	12.08582
_cons	32810.97	19785.73	1.66	0.100	-6416.159	72038.11

Figure 9: Coefficients table for the regression between GSDP and SSE

A panel regression with fixed effects is used when there is a correlation between the independent variables and the residual values, leading to omitted variable bias. To counter such a bias, the model assumes a time invariant factor, specific to each cross section in the panel data, which cannot be observed or is difficult to measure. This time invariant factor is then discounted from the model by using a technique akin to that of a first difference model. Such a discounting does not allow the time invariant factors to explain any of the variation in the dependent variable. A panel regression with random effects can be used when there is no correlation between the independent variables and the residual values. A random effects model takes into account the variability between the cross-sectional data and also allows for the inclusion of time invariant factors as explanatory variables, which were discounted and absorbed into the intercept term in the fixed model. The hypothesised data generating process is given by the following equations:

Fixed Effects Model: $GSDP_{it} = (\beta_i)SSE_{it} + \alpha_i + \epsilon i$

Random Effects Model: $GSDP_{it} = (\beta)SSE_{it} + \alpha + u\hat{}_{it} + v\hat{}it$

In the fixed effects equation, α_i stands for the time invariant factor within the groups. In the random effects equation, u_{it} stands for the between group error and v_{it} stands for the within group error.

The fixed effects panel regression result signifies that SSE is significant in explaining GSDP, and SSE has a positive coefficient of 9.62, that is, for every one unit increase in SSE, GSDP increases by 9.62 units. The random effects panel regression result states that SSE is significant in explaining GSDP, and SSE has a positive coefficient of 10.00, that is for every one unit of increase in SSE, GSDP increases by 10.00.

```
. xtreg GSDP SSE, re

Random-effects GLS regression                   Number of obs      =       108
Group variable: var25                           Number of groups   =        27

R-sq:                                           Obs per group:
     within  = 0.7236                                         min =          4
     between = 0.7670                                         avg =        4.0
     overall = 0.7539                                         max =          4

                                                Wald chi2(1)       =    289.01
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000

        GSDP |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         SSE |   10.00538   .5885433    17.00   0.000     8.851857     11.1589
       _cons |   53369.57   28262.37     1.89   0.059    -2023.663    108762.8
-------------+----------------------------------------------------------------
     sigma_u |  121383.74
     sigma_e |  82085.976
         rho |  .68619272   (fraction of variance due to u_i)
```

(a) Fixed effects

```
. xtreg GSDP SSE, fe

Fixed-effects (within) regression               Number of obs      =       108
Group variable: var25                           Number of groups   =        27

R-sq:                                           Obs per group:
     within  = 0.7236                                         min =          4
     between = 0.7670                                         avg =        4.0
     overall = 0.7539                                         max =          4

                                                F(1,80)            =    209.48
corr(u_i, Xb)  = 0.2271                         Prob > F           =    0.0000

        GSDP |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         SSE |   9.626376   .6651002    14.47   0.000     8.302784    10.94997
       _cons |   62198.18   17390.28     3.58   0.001     27590.43    96805.93
-------------+----------------------------------------------------------------
     sigma_u |  130308.54
     sigma_e |  82085.976
         rho |   .7159125   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(26, 80) = 9.56                      Prob > F = 0.0000
```

(b) Random effects

Figure 10: Panel data regression coefficients for GSDP and SSE

GSDP and SSEP

Pooled OLS Model: $SSEP = \beta_0 + \beta_1 GSDP + \epsilon$

The regression result signifies that GSDP is significant in explaining SSEP and has a negative coefficient of -0.00778, that is, for every one unit increase in Gross State Domestic Product, the Social Sector Expenditure per capita decreases by 0.00778 units.

```
. reg SSEP GSDP

      Source |       SS           df       MS      Number of obs   =       108
-------------+----------------------------------   F(1, 106)       =     13.75
       Model |   544835378         1   544835378   Prob > F        =    0.0003
    Residual |  4.1988e+09       106  39611222.2   R-squared       =    0.1149
-------------+----------------------------------   Adj R-squared   =    0.1065
       Total |  4.7436e+09       107  44332943.2   Root MSE        =    6293.7

------------------------------------------------------------------------------
        SSEP |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        GSDP |  -.0077821   .0020983    -3.71   0.000    -.0119422   -.0036219
       _cons |    11518.4   853.2369    13.50   0.000     9826.773    13210.02
------------------------------------------------------------------------------
```

Figure 11: Coefficients table for regression between GSDP and SSEP

The hypothesised data generating process is given by the following equations:

Fixed Effects Model: $SSEP_{it} = (\beta_i)GSDP_{it} + \alpha_i + \epsilon_i$ Random

Effects Model: $SSEP_{it} = (\beta)GSDP_{it} + \alpha + \hat{u}_{it} + \hat{v}it$

```
. xtreg SSEP GSDP, fe

Fixed-effects (within) regression               Number of obs     =        108
Group variable: var25                           Number of groups  =         27

R-sq:                                           Obs per group:
     within  = 0.1535                                         min =          4
     between = 0.3357                                         avg =        4.0
     overall = 0.1149                                         max =          4

                                                F(1,80)           =      14.51
corr(u_i, Xb)  = -0.6973                        Prob > F          =     0.0003

------------------------------------------------------------------------------
        SSEP |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        GSDP |   .0102097   .0026804     3.81   0.000     .0048755    .0155439
       _cons |   6364.897   848.0761     7.51   0.000     4677.172    8052.622
-------------+----------------------------------------------------------------
     sigma_u |  7589.1315
     sigma_e |  3743.5565
         rho |   .8042957   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(26, 80) = 8.45                      Prob > F = 0.0000
```

```
. xtreg SSEP GSDP, re

Random-effects GLS regression                   Number of obs     =        108
Group variable: var25                           Number of groups  =         27

R-sq:                                           Obs per group:
     within  = 0.1535                                         min =          4
     between = 0.3357                                         avg =        4.0
     overall = 0.1149                                         max =          4

                                                Wald chi2(1)      =       0.69
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =     0.4052

------------------------------------------------------------------------------
        SSEP |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        GSDP |     .00199   .0023905     0.83   0.405    -.0026953    .0066752
       _cons |   8719.334   1229.136     7.09   0.000     6310.273     11128.4
-------------+----------------------------------------------------------------
     sigma_u |  4383.0266
     sigma_e |  3743.5565
         rho |  .57820445   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

(a) Fixed effects *(b) Random effects*

Figure 12: Panel data regression coefficients for SSEP and GSDP

The fixed effects panel regression result signifies that GSDP is significant in explaining SSEP, and GSDP has a positive coefficient of 0.01020, that is for every one unit increase in GSDP, SSEP increases by 0.01020.

The random effects panel regression result signifies that GSDP is not significant in explaining SSEP. Hence the regression results are consistent with the correlation coefficients and establish the extent of the relationship between SSEP, SSE and GSDP.

Key Findings

- Firstly, a moderately strong correlation has been found between per capita social sector expenditure and HDI which is consistent with our intuitive explanation - social sector expenditure invests in human capital formation and helps in attaining an equitable distribution of opportunities for all. However, in our study a few exceptions have also been observed in this regard where HDI has decreased in spite of increase in per capita social sector expenditure. This can be due to corruption, bureaucratic defects, and under investment in the pivotal social sectors which causes inefficiency in the social sector framework.
- Secondly, a weakly positive correlation has been found between HDI and economic growth. This is again consistent with our intuitive theory- increase in human development improves the productivity and efficiency of human capital which is the core of all economic activity and thus it leads to increase in economic growth. Therefore, Gustav Ranis and Frances Stewart's findings in the paper –Growth and human development: comparative Latin American Experience weakly holds for the major Indian states as well.
- Thirdly, a positive correlation has been found between absolute social sector expenditure and economic growth which again coincides with our intuitive explanation-increase in absolute social sector expenditure leads to increase in economic growth through the human development channel. Conversely, an increase in economic growth results in an increase in the social sector expenditure because higher GDP would mean that the government will have more funds available to spend on the social sector. However, a negative correlation has been found between per capita social sector expenditure and economic growth. This can be explained as follows- if the growth rate of population is greater than the economic growth rate then even though the absolute social sector expenditure increases with increase in economic growth, the per capita social sector expenditure decreases as the increase in funds available for social sector expenditure falls short for the growing population.

Therefore, according to our study it has been proved that the intuitive flow diagram in figure-2 holds valid for the major Indian states over the period of 2005-2018.

Conclusion

The study attempts to establish the relationship between the three major indicators of economic development of an economy. Through this study we were able to show the scalar relationship between the indicators - the moderately positive correlation between Social Sector Expenditure and Human Development Index, the weakly positive correlation between the Human Development Index and Gross State Domestic Product, as well as the positive relationship between Gross State Domestic Product and Social Sector Expenditure and the negative relationship between Gross State Domestic Product and Social Sector Expenditure per capita to help us theoretically validate the framework we attempted to prove in our study.

References

1. Agarwal, Priti. Social Sector Expenditure and Human Development: Empirical Analysis of Indian States. Indian Journal of Human Development 9, no. 2(2015): 173–89.
2. Al-Hilani, Hasan. HDI as a Measure of Human Development: A Better Index than the Income Approach? IOSR Journal of Business and Management 2, no. 5 (2012): 24–28.
3. Arora, Suchit. Health, Human Productivity, and Long-Term Economic Growth. The Journal of Economic History 61, no. 3 (2001): 699–749. https://doi.org/10.1017/s0022050701030054.
4. Chakravarty, Satya R., and Amita Majumder. Measuring Human Poverty: A Generalized Index and an Application Using Basic Dimensions of Life and Some Anthropometric Indicators.‖ Journal of Human Development 6, no. 3 (2005): 275–99.
5. Dev, S Mahendra, and C Ravi. Poverty and Inequality: All-India and States, 1983-2005 :‖ Economic and Political Weekly, February 10, 2007.
6. Elistia, Elistia, and Barlia Syahzuni. The Correlation of the Hu man Development Index(HDI) towards Economic Growth (GDP per Capita) in 10 ASEAN Member Countries.‖ JHSS (JOURNAL OF HUMANITIES AND SOCIAL STUDIES) 2, no. 2 (2018): 40–46. https://doi.org/10.33751/jhss.v2i2.949.
7. Goswami, Binoy, and M.P. Bezbaruah. Social Sector Expendi tures and Their Impact on Human Development: The Indian Ex perience.‖ Indian Journal of Human Development 5, no. 2 (2011): 365{85. https://doi.org/10.1177/0973703020110204.

8. Guha, A, and D Chakraborty. Relative Positions of Human Development Index Across Indian States: Some Exploratory Results. Artha Vision 11 (2003).

9. Jude Eggoh, Hilaire Houeninvo and Gilles-Armand Sossou, 2015. Education, Health And Economic Growth In African Countries, Journal of Economic Development, Chung Ang UnIVersity, Department of Economics, vol. 40 (1), pages 93-111, March.

10. Kanbur,R.,Patel, E., Stiglitz, J.E.: Sustainable development goals and the measurement of economic and social; Progress. In: Stiglitz, J. E., Fi toussi, J. P., Durand, M. (eds.) For good measure: advancing research wellbeing metrics beyond GDP, pp. 33–48. OECD Publishing, Paris (2018). https://doi.org/10.1787/9789264307278-en

11. Kannan, K.P., and N. Vijayamohanan Pillai. Conceptualizing Social Security in a Human Development and Rights Perspective.‖ Indian Journal of Human Development 1, no. 1 (2007): 33–54. https://doi.org/10.1177/0973703020070103.

12. Kormendi, Roger and Meguire, Philip, (1985), Macroeconomic determinants of growth: Cross-country evidence, Journal of Monetary Economics, 16, issue 2, p. 141-163,

13. Mittal, Pranjal. Social Sector Expenditure and Human Development of Indian States. Munich Personal RePEc Archive, June 2016.

14. Mundle, Sudipto. Financing Human Development: Some Lessons from Advanced Asian Countries. World Development 26, no. 4 (1998): 659–72. https://doi.org/10.1016/s0305-750x(98)00004-7.

15. Prabhu, K Seeta, and S Chatterjee. Social Sector Expenditures and Human Development: A Study of Indian States, Development Research Group Study No. 6, Reserve Bank of India, Bombay. 1993.

16. RANIS, Gustav, and Frances STEWART. Growth and Human Development: Comparative Latin American Experience. The Developing Economies 39, no. 4 (2001): 333–65. https://doi.org/10.1111/j.1746-1049.2001.tb00902.x.

17. Ranis, Gustav, Frances Stewart, and Alejandro Ramirez. Economic Growth and Human Development. World Development 28, no. 2 (2000): 197–219. https://doi.org/10.1016/s0305-750x(99)00131-x.

18. Ranis, Gustav. Human Development and Economic Growth. SSRN, May 26, 2004.

19. Reserve Bank of India, November 2021. https://rbidocs.rbi.org.in/rdocs/Publications.

20. Sen, Tapas K, and Krishanu Karmakar. Reprioritisation of Public Expenditure for Human Development. Publications Unit, National Institute of Public Finance and Policy, 2007.

21. Stiglitz, Joseph E, Amartya Sen, and Jean-Paul Fitoussi. Report by the Com- mission on the Measurement of Economic Performance and Social Progress. ec.europa.eu, 2008.

22. Table 9: Per Capita Net State Domestic Product - State Wise (At Current Prices).‖ Reserve Bank of India - Handbook of Statistics on Indian Economy. Accessed December 14, 2022. https://rbi.org.in/Scripts/AnnualPublications

23. ul Haq, Mahbub. 1992. Human Development in a Changing World. New York. https://hdr.undp.org/content/human-development-changing-world.

COMPARATIVE ANALYSIS OF CEREAL PRODUCTION: A WAY TOWARDS REALIZING SUSTAINABILITY IN SOUTH ASIA

By Bhawana Adhikari, Khushbu Verma, Priyanshi Rai

Indraprastha College for Women, University of Delhi

Abstract

The paper aims at undertaking a cross-country analysis of the sustainability of cereal production in parts of South Asia. Countries within the purview of investigation are India and Bangladesh. The paper uses secondary sources of data to make interpretations and draw requisite conclusions. The Agricultural sector stands as the backbone of the economy in South Asian nations. Moreover, cereals play a significant role in escalating the nutritional levels of consumers and have been considered a major driver of food security. Therefore, the characteristic of being an agrarian economy has certainly contributed to the development ofthe region.

Keywords: sustainability, cereal production, South Asian countries

1. Introduction

Characterized by multiple topographies and ethnicities, South Asia is home to about one- fourth of the global population, the majority of whom live in rural areas and are dependent on agriculture and other allied activities as a means of livelihood. According to statistics, South Asia harbors 1.749 billion people and 67% of them are living in rural areas. Almost half of the workforce is employed in the agriculture sector and around 42% of South Asia's landmass is under agricultural operation (SAARC, 2020). Even though the share of agriculture to GDP growth has relatively declined over the years, it still holds tremendous importance in meeting the ever-increasing demands of food and nutrition of such a vast population and thereby, ensuring food security. Under agriculture, cereal production forms an integral area of study, considering cereal is the staple food of South Asians. Cereals are a major source of dietary energy and nutrients. Wide varieties of such crops like rice, maize, wheat, sorghum, millets etc. are cultivated and consumed all over the region. Moreover, archaeologists have found mentions of cereal crops in ancient texts like the Vedas that clearly depict the significance they bore for our ancestors.

The focus of our study would be to perform an inter-country analysis of India and Bangladesh in terms of levels of sustainability achieved in the area of cereal yield. The reason for the selection of these two countries of South Asia is that their economies are complementary to a large extent and stand to benefit substantially from economic integration (De and Bhattacharyay, 2007, 44). Due to the availability of apt data and certitude that rice andwheat are the rudimentary as well as salient cereal crops (Joshi et al., 2004) that are cultivated in Bangladesh and India, the paper studies these aforementioned cereals.

The objective of the paper is to compare the countries based on the level of sustainability these have attained in cereal production.

2. Literature Review

The basic responsibility of a nation is to satiate the demand for food and eradicate hunger in each section of society. It is relatively easier for rich economies to import agricultural yield (cereals being an indispensable part of the consumption basket in most countries) in case they lack agricultural output in self-production. However, developing nations have their last resort to maximize their agricultural yield in the most sustainable and economically feasible way. South Asian countries have agriculture as their mainstay for economic development. This sector has a huge support base for the provision of employment and it majorly contributes to the food supply (Bashir and Ahmad, 2001).

One of the invincible impediments that come while increasing agricultural yield is that the land area suitable for agriculture is fixed and cannot be increased beyond a certain extent. Therefore, the role of science and technology takes the lead to develop methods for more productive cultivation methods (Guryay et al., 2005).

Resources are frequently described by economists as finite, largely natural means of production that must be exploited in an efficient, sustainable manner in order to save money and lower long-term risks (Berger and Herdenberg, 2018). From this vantage point, cereals are crucial agricultural resources, and sustainability in their cultivation cannot be discarded.

The paper studies the two focal cereal crops, rice and wheat. These form the top of the seven agricultural crops that are cultivated on the largest proportion of the world's total land area (Hayati, n.d.). The largest agricultural production system in the world, the rice-wheat cropping sequence (RWCS), covers approximately 12.3 million hectares in India and 0.8 million hectares in Bangladesh. Approximately 85% of this area is in the Indo-Gangetic plains (IGP) (Bhatt et al., 2016).

3. Research Methodology

Goal 2 of the Sustainable Development Goals (SDGs) of the United Nations is 'Zero Hunger', which clearly states one of its targets as Sustainable food production and resilient agricultural practices (United Nations, n.d.). Sustainable agriculture is a multi-dimensional concept and these dimensions will be examined under the following three sub-indicators, Land Productivity, Food Security Index, and Irrigation (water use), as directed by the UN (Sustainable Development Goals, n.d.). These sub-indicators are modified in accordance with the area of study chosen under agricultural production, i.e., cereal production to measure the level of sustainability in the same.

3.1 Land Productivity

Land Productivity refers to the amount of agricultural output per unit of land (UNESCWA, n.d.). Particularly, cereal yield per unit of land will be computed for India and Bangladesh and the data obtained will be subject to comparison through tabular and graphical representations. The units of measurement for yield and land are tonnes and hectares respectively.

Table 1: Cereal Production (Rice and Wheat) in Tonnes (2011-2020)

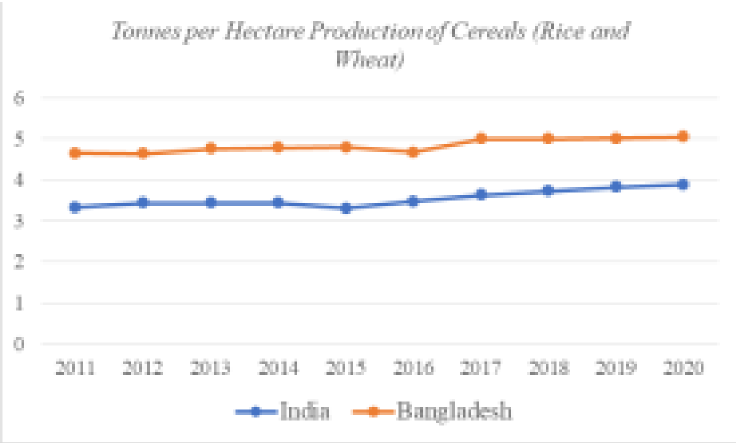
	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
India	244774000	252680000	252710000	253050000	243070000	255990000	267010220	274586250	281241230	285895000
Bangladesh	51599085	51492356	52789000	53109593	53153464	51801052	55459473	55515373	55603155	55934891

Source: Food and Agriculture Organization of United Nations, n.d.

The data from Table 1 was used to compute the Cereal Yield (Tonnes) per Hectare of India and Bangladesh (2011-2020). The ground assumption taken is that the area under rice, as well as wheat cultivation, is fixed for the years of study (2011-2020). It is 73.66 million hectares and 11.091 million hectares for India and Bangladesh, respectively.

Table 2: Cereal Yield (Tonnes) per Hectare of India and Bangladesh (2011-2020)

	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
India	3.32	3.43	3.43	3.43	3.29	3.47	3.62	3.72	3.81	3.88
Bangladesh	4.65	4.64	4.75	4.78	4.79	4.67	5.00	5.00	5.01	5.04



Graph 1: Graphical representation of Table 2

From Table 1 and Graph 1, it is evident that Bangladesh has a greater per-hectare cereal production than India. In 2011, Bangladesh's per-hectare cereal yield was about 4.65 tonnes while it was only 3.32 tonnes for India. A similar trend of differences can be seen in the data after a period of 10 years in 2020 when the former was able to produce about 5.04 tonnes of cereals per hectare while the latter could yield only 3.88 tonnes of cereals per hectare. The Compound Annual Growth Rate (CAGR) is the average increase in the value of a measure over a specific interval of time (Gil et al., 2018). The CAGR of India is 1.755 while it is 0.90 for Bangladesh, indicating a better yet slow growth in the indicator for India than for Bangladesh.

3.2 Food Security Index

The Global Food Security Index (GFSI), developed by Economist Impact and supported by Corteva Agriscience, considers food affordability, availability, quality and safety, and sustainability and adaptation across 113 countries. (Economist Impact, n.d)

For the purpose of the study, the paper mainly considers the availability of food as a measure of food security. A rice-wheat (RW) system is highly prevalent in the South Asian region, covering 26 million hectares of the Indo-Gangetic Plains (one-third of the total area under rice and wheat cultivation in South Asia). It provides staple food for more than 20% of the world's population (Chauhan et al., n.d.). As wheat and rice are the pivotal cereal crops in India and Bangladesh (Joshi et al., 2004), their contribution to providing basic grains is significant towards food security.

Table 3: Global Food Security Index Rankings (2012-2020)

	2012	2013	2014	2015	2016	2017	2018	2019	2020
India	66	70	69	68	75	74	76	72	71
Bangladesh	N/A	N/A	N/A	N/A	N/A	N/A	N/A	83	84

Source: Economist Impact, n.d.

Graph 2: Graphical Representation of Table 3

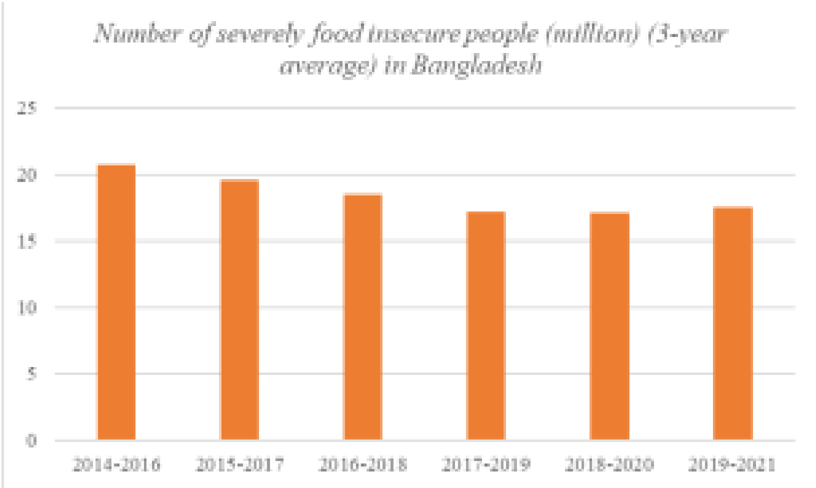
As per the report of the Global Food Security Index over the year 2012-2020 (Table-3), it could be seen that India has had its position around the 70s. Overall, the rank has fallen from 66 in 2012 to 71 in 2020. Due to the unavailability of data, a systematic comparison cannot be drawn for both countries, except for the years 2019 and 2020. India has secured a better position than Bangladesh in the aforementioned years.

Following seven years of progress towards the Sustainable Development Goal of eradicating hunger by 2030, there has been a drop in global food security. Although nations have made tremendous progress in the previous 10 years to combat food insecurity, food systems are nevertheless susceptible to economic, climatic, and geopolitical shocks (Economist Impact, n.d.).

Table-4: Number of severely food insecure people (million) (3-year average) in Bangladesh

	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020	2019-20
Bangladesh	20.7	18.5	17.2	17.1	19.6	17.5

Source: Food and Agriculture Organization of United Nations, n.d.



Graph 3: Graphical Representation of Table 4

The paper clearly shows that Bangladesh has progressed in reducing the number of severely food insecure people over the years 2014-2020. However, a slight rise is witnessed during the triennial 2019-2021. The data for India for the same period is unavailable, so the analysis cannot be drawn.

3.3 Irrigation

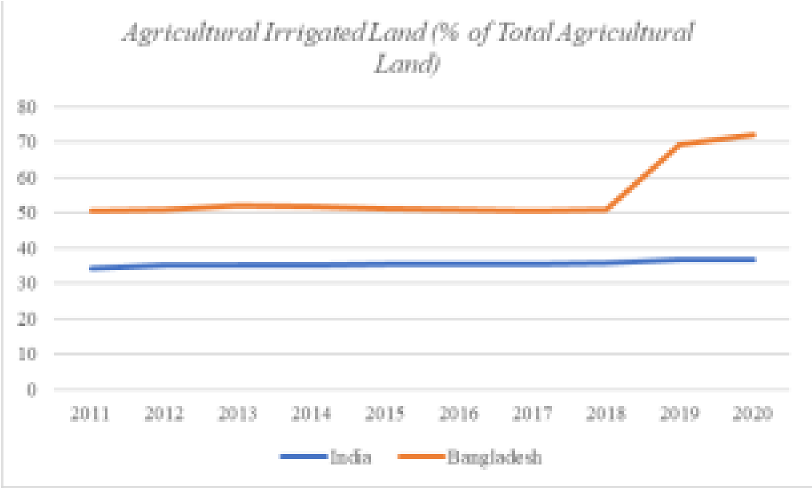
Agriculture ecosystems are the principal suppliers of food but they are also the main users of water resources on a global level (Almeria et al., 2019).

For a comparison of water availability for agriculture in Bangladesh and India, this paper considers the percentage of agricultural irrigated land as an indicator. As defined by Food and Agricultural Organization (FAO), agricultural irrigated land refers to agricultural areas purposely provided with water, including land irrigated by controlled flooding.

Table-5: Agricultural Irrigated Land (% of Total Agricultural Land)

	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
India	34.15	35.04	35.13	36.64	35.21	35.29	35.37	35.51	35.57	36.64
Bangladesh	50.58	50.92	51.95	51.74	51.16	50.74	50.54	50.74	69.29	71.9

Source: The World Bank, n.d.



Graph 4: Graphical Representation of Table 5

As per the report published by the Food and Agricultural Organization (FAO), the irrigation pattern of Bangladesh is higher than that of India. India has experienced a constant rate of agricultural irrigated land of around 35% to 36% for all ten consecutive years and this trend is similar to that of Bangladesh till 2018 with a different figure of 50% to 51%. We can see a tremendous increase in land irrigated in 2019 as the percentage skyrocketed to 69.2 from 50.7.

Cereals play a dominant role in an Indian diet and contribute to approximately 50% of the total water used in the agricultural production of food in India (Kayatz et al., 2019). Similarly, in Bangladesh, rice production covers 77% of total agricultural lands (Ahmed et al., n.d.). Also, wheat acre-age ranks second after rice (Rahman and Hasan, 2008). So, the situation of irrigation for agricultural land as a whole can be narrowed down to the land under cereal production. Most of the farmers in these nations face drought or flood as an upshot of climate change which raises the threat to food security, this also points towards why adequate irrigation plays a notable role.

4. Results and Discussions

Section 3.1 shows the cereal-yielding capacity of land in India and Bangladesh. According to the report by the FAO, Bangladesh has focused on raising the level of productivity of its agricultural land to produce cereals (rice and wheat) by employing better agricultural methods and implements than India. While Bangladesh needs to make its agricultural system resilient enough to maintain this better state of productivity, India must work on augmenting the level of land productivity to produce cereals for a population of more than a billion. (The World Bank, n.d.).

It can be inferred from section 3.2 and the reports of the Global Food Security Index that India has performed better than Bangladesh in recent years. Although India holds a better rank, Bangladesh has also progressed in reducing the number of severely food-insecure people. Action is imperative at all scales—local, national, and international—to end hunger and malnutrition and guarantee food security for all. Intervention in the form of increased investment and better technology can change the situation for the good.

Section 3.3 provides insight into the percentage of land irrigated as an indicator to show the situation of irrigation for better cereal yield. According to the data computed on irrigation for analysis, Bangladesh possesses a higher percentage of irrigated land (out of the total agricultural land) than India. India has a lot to improve in the area of irrigation to accelerate the path to sustainability.

5. Conclusion

After monitoring the progress of the two countries against the three sub-indicators, the research derives varied results for each of the three sub-indicators of 'Sustainable Food Production and Resilient Agricultural Practices'. While for land productivity and irrigation, Bangladesh showed a more promising growth than India, the latter surpassed the former in terms of the prevalence of food security. Relying solely on the data considered for the study might not be helpful for policy implementation but a few important conclusions regarding the current situation of sustainable agriculture in these nations can definitely be drawn.

Thus, the only way forward for these agrarian economies is to work on their loopholes. India should focus on raising the productivity of its land and elevating the level of irrigation by judicious use of modern agricultural methods and investment in technology and innovation. This will, further, improve the situation of food security in the country. Despite the fact that Bangladesh is in a better position than India in terms of irrigation and land productivity, it has not been able to save its population from the ill fate of food insecurity. Thus, the way forward for Bangladesh is to focus on diversification in cereal production and the development of efficient food distribution systems to ensure that the food reaches even the poorest of the poor.

References

1. Ahmed, AU, K. Ahmad, V. chou, and R. Hernandez. n.d. The Status of Food Security in the Feed the Future Zone and Other Regions of Bangladesh: Results from the 2011–2012 Bangladesh Integrated Household Survey. *International Food Policy Research Institute*, no. 2013.

2. Almeria, Juan V., jośe A. Aznar-Sànchez, Ana Batlles d. Fuente, and Maria D. Fidelibus. 2019. Sustainable Irrigation in Agriculture: An Analysis of Global Research.‖ *water* 11 (08).

3. https://www.researchgate.net/publication/335339981_Sustainable_Irrigation_in_Agricu lt ure_An_Analysis_of_Global_Research.

4. Bashir, Zulfiqar, and Munir Ahmad. 2001. ―The Role of Agricultural Growth in South Asian Countries and the Affordability of Food: An Inter-country Analysis [with Comments]. *The Pakistan Development Review, Winter 2000* 39, no. 4 (January): 751-767. https://www.jstor.org/stable/41260296.

5. Berger, Peter, and Roland Herdenberg. 2018. Cereal Belongings. *Paideuma Mitteilungen zur Kulturkunde* 64:167-182. https://www.jstor.org/stable/10.2307/ 26589138.

6. Bhatt, Rajan, Surinder S. Kukal, Mutui A. Busari, Sanjay Arora, and Mathura Yadav. 2016. ―Sustainability Issues on Rice-Wheat Cropping System. *International Soil and Water Conservation Research* 4, no. 1 (March): 64-74. https://doi.org/10.1016/ j.iswcr.2015.12.001.

7. Chauhan, Bhagirath S., Gulshan Mahajan, Virender Sardana, Jagadish Timsina, and Mangi L. Jat. n.d. Chapter Six–Productivity and Sustainability of the Rice–Wheat 13

8. Cropping System in the Indo-Gangetic Plains of the Indian subcontinent: Problems, Opportunities, and Strategies. *Advances in Agronomy* 117:315-369. https://doi.org/10.1016/B978-0-12-394278-4.00006-4.

9. De, Prabir, and Biswa N. Bhattacharyay. 2007. Prospects of India–Bangladesh Economic Cooperation: Implications for South Asian Regional Cooperation. *Asian Development Bank*. https://www.think-asia.org/handle/11540/3666.

10. Economist Impact. n.d. Global Food Security Index. Economist Impact. https://impact.economist.com/sustainability/project/food-security-index/resource-library. Food and Agriculture Organization of the United Nations. n.d. Crop and Livestock Product.‖ FAOSTAT. https://www.fao.org/faostat/en/#data/QCL.

11. Food and Agriculture Organization of the United Nations. n.d. Suite of Food Security Indicators. FAOSTAT. https://www.fao.org/faostat/en/#data/FS.

12. Gil, S. Sanchez, J. Gorraiz, and D. Melero Fuentes. 2018. Reference density trends in the major disciplines. *Journal of informetrics*.

13. Guryay, Edral, Okan V. Safakli, and Behiye Tuzel. 2005. –The Comparative Analysis of Agricultural Sector Productivity in North Cyprus and the European Union. *Akdeniz Universitisi Ziraat Fakultesi Dergisi* 18 (1): 51-61. https://dergipark.org.tr/tr/download/ article-file/18221.

14. Hayati, D. n.d. A Literature Review on Frameworks and Methods for Measuring and Monitoring Sustainable Agriculture. *Global Strategy to Improve Agricultural and Rural Statistics (GSARS Technical Report n.22*. http://gsars. org/wpcontent/uploads/ 2017/03/TR-27.03.

15. 2017. A-Literature-Review-on-Frameworks-and-Methods-for-Measurin. pdf (2017).14

16. Joshi, P. K., Ashok Gualti, Pratap S. Birthal, and Laxmi Tewari. 2004. –Agriculture Diversification in South Asia: Patterns, Determinants and Policy Implications.‖ *Economic and Political Weekly* 39, no. 24 (June): 2457-2467. http://www.jstor.org/ stable/4415148.

17. Kayatz, Benjamin, Francesca Harris, Jon Hillier, Tapan Adhya, Carole Dalin, Dali Nayak, Rosemary F. Green, Pete Smith, and Alan D. Dangour. 2019. More crop per drop: Exploring India’s cereal water use since 2005. *Science of The TotalEnvironment* 673 (2019): 207-217. https://www.sciencedirect.com/science/article/ pii/S0048969719313026.

18. Rahman, S., and MK Hasan. 2008. Impact of environmental production conditions on productivity and efficiency: A case study of wheat farmers in Bangladesh. *Journal of Environmental Management* 88, no. 4 (September).

19. SAARC. 2020. Agriculture And Rural Development. SAARC Secretariat. https://www.saarc-sec.org/index.php/areas-of-cooperation/agriculture-rural-development. Sustainable Development Goals. n.d. SDG Indicators, Metadata Repository. UN Stats. Accessed October 5, 2022. https://unstats.un.org/sdgs/metadata/?Text=&Goal=2&Target.

20. UNESCWA. n.d. https://www.unescwa.org/sd-glossary/land-productivity. United Nations. n.d. Goal 2: Zero Hunger. SDG Tracker. Accessed October 5, 2022. https://sdg-tracker.org/zero-hunger#2.4.

21. The World Bank. n.d. Population, total - India | Data. World Bank Data. Accessed October 6, 2022. https://data.worldbank.org/indicator/SP.POP.TOTL?locations=IN. The World Bank. n.d. World Bank Open Data. Data, World Bank. https://data .worldbank.org/.

GLOBALIZATION AND ITS IMPACT: A NARRATIVE REVIEW

By Tanveer Rahman, Diya Gupta, Raj Vardhan Singh, Tanish Vats
College of Vocational Studies, University of Delhi

Abstract

This paper attempts to study the numerous impacts of globalization. However, utopian the topic might seem, today people yearn for a globalized, unfettered world where seekers of knowledge could learn and grow unhindered by man-made constraints. This paper strives to answer the change in income disparity in developing and developed nations due to globalization. The effects of financial and trade globalization and the role of government are also analyzed. The increase in income inequality is examined through the case of China and India. The impact of globalization on the market and local producers is probed in a study of Michoacan, a state in Mexico. The benefits and downsides of the impact of globalization on local producers and the role of WTO in it are scrutinized. Our study also considers the impacton living standards and the social impact of globalization. The purpose of this paper is to offer a literature review on the impacts of globalization based on selected authors and to discuss their arguments to explain or back the various impacts to present a more cosmic and inclusive perspective.

Keywords: globalization, inequality and income

1. Introduction

Globalization is often referred to as the rise in global interconnectedness, but does this mean that these countries were isolated before globalization? Take India for example, India was connected with countries like China and Persia much before globalization ever came into being. This begs the question: what are the specific features of globalization that make it distinct from other instances of countries making connections?

Globalization is special because of the sheer scale and pace at which countries get connected. Technology is one of the most critical features that allowed globalization to spread so rapidly. With new communications technology like the telephone and internet, one person could easily connect with people in other parts of the world. This made the prospect of Multinational Companies (MNCs) possible. MNCs are companies that conduct operations in multiple countries. This made it such that companies in developed countries could set up manufacturing units in poor countries to lower their cost of production and maximize profits.

For example, Apple, a large company based in America, makes their iPhones in China because of the cheap labour and lower taxes. The practice of outsourcing is also on the rise. Outsourcing refers to the practice where companies hire a third party to do some of their functions. For example, many large companies outsource their call centers' work to Indian call centers.

MNCs can only set up shops in developed countries when they open up the economy, this opening of the economy is called liberalization. Liberalization refers to the removal of rules that regulate trade and finance. This made it so that imports and exports had little to no tariffs and institutions from abroad could now easily invest in the economy. In the context of many developing countries like India, these changes were led by the International Monetary Fund (IMF). When India was struggling financially, the IMF provided loans on the condition that India liberalized its economy.

Globalization is not just an economic concept. It has political and social dimensions as well.

1.2 Economic dimension

As it was previously discussed, the IMF and the World Bank have coerced many developing countries to open up their economies. Globalization has led to a rise in MNCs and outsourcing. One might say that both of these have helped develop countries as they provide employment. One might also say that these policies have benefited developed countries more than developing countries.

1.3 Political Dimension

Since globalization leads to the removal of regulations it also directly reduces state power to influence the market economy. Globalization also led to an increase in trade relations between countries which has led to more diplomatic understanding among countries.

1.4 Social Dimensions

Globalization relates to the interconnectedness of culture as well. One might argue that this might lead to the erosion of distinct cultures. An example of this can be Indians being heavily influenced by Western culture as Western brands populate the market, Western movies are shown in Indian theatres etc. Whether the changes are positive or negative is subject to debate.

The debates on globalization are endless. Considering its dimensions, it seems impossible to unravel whether it is a net positive or negative. It is also good or bad depending on its various stakeholders. How does globalization affect the distribution of income in a country? What are the social impacts of globalization? These are some of the questions one might think of when they think about globalization.

This paper strives to answer some of these questions. The first question studied in this paper relates to the change in income distribution induced by globalization. One might think since MNCs bring so much employment, it reduces income disparity. Another might say due to the import of newer technology, only skilled workers (like programmers) would be benefitted hence the increase in income disparity. When both statements are examined, one can see that both of them have no actual basis to them. They are both anecdotal and speculative, ashot in the dark as it seems. What might seem like common sense might be completely wrong when examined. For the research, only empirical studies are considered as it is the only one that can reasonably stand behind their findings.

This paper also tackles other questions like *"What are the social impacts of globalization?", "What are the effects of globalization on local producers?", "What are the types of globalization?"* and *"What are the social effects of globalization?"*

All these questions can be debated upon thoroughly and one still might not end up with any consensus. Concluding the introduction, the effects of hlobalization are a complex web of facts, figures and questions that ought to be unraveled. Even if contradicting results arise, they must be documented. All one can do is try and move closer to the truth; such is the life of the researcher.

2. Globalization and its effects on income disparity

Globalization refers to the increasing interconnectedness of the world. The term gained popularity in the 1980s due to the rapid spread of neoliberal policies during that time. The conventional wisdom on the consequences of globalization related to income is that it leads to more income disparity. We want to see if this is backed by empirical evidence or not by using previous research done on similar topics.

Economic researchers use various tools to find out values that cannot be found explicitly. One such tool is the Gini coefficient.

The Gini coefficient is a value between zero and one that measures the degree of inequality in the distribution of income in a given society.

When the value is 0, each member of the society receives the same income. When the value reaches 1, a single member receives all the income.

2.1 Globalization of Trade and Finance

When one thinks of globalization, one mostly thinks of industrial supply chains that span multiple countries, outsourcing of jobs etc. But we would like to point out another big feature of globalization which is the globalization of finance. Simply put, it is the ability to move capital across borders easily. It is largely characterized by the amount of FDI. This distinction will help us understand the effects of globalization with more focus.

2.2 Differing conclusions

Globalization is not an isolated process by any means it has social, economic, and political dimensions. Since there are so many dimensions and variables regarding globalization, conflicting conclusions occur frequently.

- One research suggested globalization has resurrected problems of global competition, job termination, salary reductions, labour immobility, and technology displacement of workers, accelerating the rate of global unemployment, with endemic inequality and poverty as a corollary (Wilfred, Andre and Slabbert, 2009).
- Most research however is not completely anti-globalization. Research also suggests things like tariff reductions might help the poor more than the rich (Jaumotte et al., 2013).

2.3 Differentiation between developing and developed countries.

The consensus on globalization is also that it benefits developed countries much more than developing countries. Here we are only concerned with the income disparity induced by globalization. We get some interesting results.

- While globalization has increased industrial wage inequality in developed countries by a significant amount, its effect on developing countries was small (Dreher and Gaston, 2006).

- In both developing and developed countries, financial globalization (particularly FDI) increases income inequality. For developed countries, outward FDI creates an additional negative impact (Jaumotte et al., 2013).
- The assumption that FDI is always good for developing countries is not empirically shown in the study (Agosin and Mayer).

2.4 Trade and financial globalization effects

Now that we come back to this topic, it is important to formally define the topic first.

- Globalization of trade refers to the process of linking regional markets to form an international one. It involves the loosening of trade restrictions, lowering of tariffs, rise in outsourcing, increase in privatization etc.
- Globalization of Finance refers to the opening of financial markets. It opens access to borrowing, lending, and investing worldwide.

Research has shown these two aspects of globalization often have different outcomes.

- Increase in exports and the reduction in tariff rates lead to a reduction in inequality. While the increase in FDI increases inequality (Jaumotte et al., 2013).
- Trade doesn't significantly affect relative property while financial openness increases both relative and absolute poverty (Santarelli and Figini, 2004).
- Financial integration leads to negative social effects and higher FDI leads to higher domestic wage inequality.
- Effect of trade globalization on income inequality is positive but small, while financial globalization pushes it upward by much more.

2.5 Role of the government and other factors

The government is a big factor in how globalization affects the economy. China, for example, used government policies in such a way that the negative effects of FDI were minimized (Lessmann C, 2013). Other than that, the size and stability of the country's financial institutions also play a big role in determining the effect of globalization.

- While FDI can increase income inequality, the extent of its effects is dependent on the absorptive capacity of the economy.
- This means that low levels of human capital and economic development can lead to more income inequality as FDI increases

- While high levels of human capital and economic development can even lead to a reduction in income inequality (Svilena Mihaylova, 2015).
- The relationship between FDI and growth relates to the strength of its financial institutions. The better the financial institutions, the more the growth (Lessmann C, 2013).
- There is lesser FDI-induced regional disparity in high-income countries (Lessmann C, 2013).
- Technological progress and domestic financial deepening[1] both lead to higher inequality. This can be explained by the fact that the rise in technology, benefits higher-skilled workers and financial deepening may benefit the rich more than the poor (Jaumotte et al., 2013).

2.6 Different regions, different outcomes

This section would like to further emphasize the fact that each country has many different variables at play. Hence, we look at some research done on singular countries and see their differences

- In Pakistan, the Gini coefficient rose from 0.36 in 1972 to 0.41 in 2005. It remained mostly at 0.40 throughout this period. The results suggest that globalization does increase income inequality (Hussain et al., 2007).
- Using data on more than 100 Chinese cities the researchers have concluded that there is a negative relation between inequality and openness.
- Cities that have more trade witness a faster reduction in urban-rural inequality (Wei, Shang – Jin and Yi Wu, 2001).
- In sub-Saharan Africa, Globalization is shown to worsen inequality, the negative effects of it decrease as economic development increases and financial deepening reduces inequality (Kai and Hamori, 2009).

[1]Financial deepening refers to the increase in the provision of financial services

2.7 Concluding Remarks

Globalization at the end of the day is such a large phenomenon we might never be able to understand all its implications. Some variables might have been missed, data could have been considered and so on. All we can do is move on and try to do our best from the information we have.

From all the papers that have been analyzed, there are a few points that echoed in many of them. Those conclusions are:

- Globalization of Finance causes much of the inequality produced by globalization itself
- While globalization of trade also causes inequality, it has a much smaller impact.
- The impact of globalization depends on the stage of the country's development and the education level of its workforce.
- The inequality-raising impact of inward FDI is related to the human capital level of the country.
- This happens as FDI usually happens in sectors where a highly skilled workforce is needed, hence resulting in an increase in demand and wages for those higher-skilled workers.
- The Impact of Globalization also depends on the quality of the country's financial institutions
- The role of the government is huge in minimizing the negative effect of globalization
- The government needs to ensure high human capital development and ensure high quality of its financial institutions

3. Globalization and Income Inequality

Globalization is an important economic force that affects most countries in the 21st century.

The relationship between globalization and income inequality is a subject of considerable controversy in economic literature. On the one hand, globalization is considered to promote economic growth and social welfare of the society where developing countries have a chance to reduce their gap with the world economy, while on the other, globalization is blamed for increasing income inequality.

Large inequalities can eventually undermine global integration and social stability thus hampering long-run growth prospects and the legitimacy of globalization.

3.1 Globalization: Historical Evidence

Since the Second World War (1939-1945), the world economy has become much more integrated, especially during the second wave of globalization. In the last two centuries (1800-2000) the world has seen an unprecedented increase in the capacity to create wealth and undergo technical change.

Let's now turn to the historical evidence of the impact of economic openness and globalization on world inequality.

3.1.1 The First Wave of Globalization (1870-1913)

The evidence from this time shows that the group of advanced economies back then converged the per capita income and real wages prevalent at the time and thus was able to reduce the income gaps among these countries. This happened because of the ease of trade and massive migration. However, other economies around the world were left behind.

3.1.2 The De-Globalization (1914-1950)

The 1914 to 1950 period was very disruptive for the world economy. This period included World War I, high inflation in Europe in the 1920s, increasingly restrictive practices towards international migration in the U.S., the great depression in the 1930s and then World War II. Global disparities widened in the de-globalization period, both between the richest and the poorest regions in the world economy.

3.1.3 Golden Age of Capitalism (1950-1973)

This period contained 25 years of rapid growth, relative stability, and declining inequality. The fixed exchange rate was applicable internationally which helped in maintaining the welfare state in advanced economies and the developmental state in developing economies. In this period the GDP gap from richest to poorest region fell from 15:1 in 1950 to 13:1 in 1973.

3.1.4 Second Wave of Globalization

This wave came after the fall of the Bretton wood system which led to the end of the golden period. The advanced economies that were continuously growing, faced deceleration ingrowth and an acceleration in inflation. The economic growth rate during this period was 1.33 per year, less than half of the growth rate of 1950-1973. The second wave led to an increase in inequalities. The convergence happened in Asia and the divergence happened in Eastern Europe and the former Soviet Union.

3.2 Inequalities in Developed vs Developing Economies

For the last two decades, rising inequality has been a problem for both developed and developing economies. Globalization and income inequality share a different relation in different groups of countries: developed and developing. Whenever globalization has increased it affects both groups differently. The distributional effects of globalization are contrasting between developed and developing countries. That is why different countries pursue different global economic policies to achieve a broader notion of economic well- being, which includes income equality as well as quantifiable economic growth.

3.3 Developed Economies

Countries which have high levels of economic growth and security are considered to have developed economies (common criteria for evaluation include income per capita) such as the United States, the United Kingdom, and the majority of Western and Northern Europe.

The role played by globalization in labour market outcomes and income inequality in developed countries has been a particularly fertile ground for research.

Most of the developed economies experienced increased inequality in labour earnings during the 1980s, there were considerable differences in development across countries.

Globalization affected income inequalities in developed economies in the following ways:

1. Economic and political dimensions of world globalization result in higher inequalities in developed countries.
2. For developed countries, imports from developing countries are associated with a reduction in inequality.
3. Increase in trade intensity increases inequality in developed countries.
4. Deepening of financial integration decreases income inequality in developed countries.

Among the developed countries, two experienced large increases (the United States and the United Kingdom); some experienced moderate increases in inequality (e.g., Canada and Australia); some experienced small increases (e.g., the Scandinavian countries, France, and Japan) and a few experienced slight reductions or increases.

* The United States and the United Kingdom continued to experience a rapid rise in earnings inequality.

(In the U.S., the changes in the sector composition of the economy from manufacturing to services and other non-tradable sectors are the most important force behind the widening of the wage gap)

Among developed countries, where the Gini coefficient has risen by an average of 0.6% every year over the sample period, the adverse impact of globalization is somewhat larger as compared to developing economies.

3.4 Developing Economies and Emerging Market Economies

Developing economies consists of economies which are not completely developed. An emerging market economy is an economy that is transitioning into a developed economy, it is in the process of industrializing.

In the following ways, globalization affects developing economies:

1. Increase in trade intensity reduces the income inequality
2. Increased depth of financial integration increases inequalities.
3. Low-income countries specialize in the production of less skill-intensive work. As a result, trade reduces the gap between the low-skill and high-skill workers within developing countries
4. Globalization has led to rapid changes in technology that has led to higher levels of inequalities in developing economies.

   *The adverse effect of technology on income inequality is more evident in Asia than in Latin America as manufacturing is a greater share of the economy in many Asian countries than in Latin American countries.

5. Developing countries that are moving away from the agricultural sector to the industry are expected to improve the distribution of income by increasing the income of low-earning groups

   Among developing countries, the Gini coefficient has risen by about 0.3% a year on average. Globalization has provided a small counterweight by helping in reducing income inequality.

In the major emerging market countries, trends are more diverse such as sharply rising inequality in China, little change in India, and falling inequality in Brazil.

China and India together constitute about 35% of the world's population. So, the study of globalization and inequalities in these countries will give us an idea of how income is distributed among large proportions of the population.

3.5 Globalization in China

In China, economic reforms were introduced in 1978 for various economic reasons (13 years before India). Economic globalization characterized by increasing international trade and foreign direct investment (FDI) flows has brought great impacts and led to dramatic changes in China's economy.

3.6 Impact of Globalization

China has had immense success in promoting economic growth and reducing poverty at a very rapid rate in the last three decades. According to World Bank estimates, the poverty rate in China reduced from 84% in 1981 to 15% in 2005.

However, the increase in income inequality in China has increased more than in the U.S. or any other economy which outweighs the positive impacts.

3.7 Income Inequality

In China, the income inequality between 1978 and 2006 has increased rapidly which has diminished the positive economic impacts and has raised controversy on whether economic globalization has contributed to economic and social instability within the country.

According to the data from the National Bureau of Statistics of China, the Gini effect has constantly increased from 0.194 in 1978 to 0.470 in 2006.

If you study the data from NBSC, the People's Bank of China and the China customs it will show that increased globalization has led to an increase in per capita GDP growth which deteriorates income distribution (i.e., increasing the Gini coefficient).

As for the reasons for income inequality worsening, the imbalanced development in different regions is one of the main reasons in China.

Since 1978, particularly since the early 1990s, China's economy has grown very rapidly but quite imbalanced. While the large cities and coastal regions have developed quickly, the other internal regions remain less developed and fall even more behind than before.

As a result, the faster the economy grows, the larger the income inequality in different regions, and the higher the country's Gini index.

3.8 Globalization in India

Globalization in India accelerated in 1991 during the introduction of the new economic policy:

- Liberalization
- Privatization
- Globalization

These initiatives became stronger in the early 2000s. Even the government of India was not confident about these decisions and the decision of opening Indian markets for global competition and they were taken forcibly due to the problem of balance of payments faced by the country. These decisions faced a lot of opposition from critics about their impact on the overall economy and life in India. The Indian experience with this has not been very bad. In many ways, globalization can be seen in India from international trade to international production in India.

3.9 Effects of Globalization in India:

India's GDP and involvement in international trade have sharply increased since 1991. The economic integration of India with the rest of the world has had a significant impact on export as it has increased from $1.66 billion in 1991 to more than $251 billion in 2011 in 20 years but the need for imports has also increased.

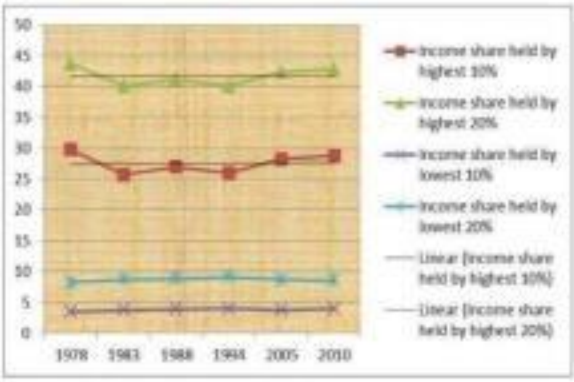
Globalization has also increased the share of foreign investment in India many times during the period from 1985 to 2002. Many multinational companies have entered the Indian market to produce and sell goods and services in local as well as international markets simultaneously leading to a huge positive impact on the manufacturing sector. Also, the per capita GDP and per capita income during the period of 1991 to 2010 have increased manifold.

3.10 Income Inequality

The process of globalization has led to huge economic progress in some countries but has also increased income inequality.

* Income Inequality in 2010 has significantly increased as compared to the level of inequality in 1991 along with the increase in globalization.

For a lower level of inequality in any society, it is important that the income is distributed properly in society and it reaches the last person in the queue. If that happens, the level of inequality in society would be lower.



Graph 1: Income distribution in India since 1978

From the above graph, the following conclusions about income inequality can be drawn:

1) Highest 10% income holders:

   Their income share has come down since 2010. As compared to 1978 however, it has increased between 1991 and 2010.

2) Highest 20% income holders:

   The behaviour of their income share is like the highest 10%.

3) Lowest 10%- and 20%-income holders:

   Their income share throughout the period remains around the same level.

3.11 Conclusion

- The age of globalization promises global prosperity. However, this is also an age of large inequalities that can eventually undermine global integration and stability thus hampering long-run growth prospects. The biggest cost of globalization is the growing income inequality.

- The results show that income inequality has increased mainly in middle and high- income countries and lesser so in low-income countries. It is the developed countries, rather than the developing countries, that oppose greater integration. That is, the developed countries do so because of increased inequality and the implied political consequences in their economies.
- In China, the worsening of income inequality is not the result of economic globalization and thus the integration with the global economy is not a contributing factor towards increasing inequality in the country.
- In India, after the globalization process started in 1991, higher GDP and income growth are leading to lower levels of poverty in the country but inequality has increased because of the distribution of income tilted in favour of the rich. This problem can be tackled by bringing some regulations relating to the distribution of income and wealth that can bring equality in society.

4. Impact of Globalization on the Market and local producers

Global Village is a term closely related to a world that has been minimized into a village by electrical technology and the instantaneous movement of information from every quarter to every point at the same time. Multi-national individuals thrive best in a world where freedom of movement ensures multicultural exchanges. Our world is developing its modern transport and communication. They have helped man conquer time and space; nations of the world have come much closer to each other as a result of these wonderful achievements. Now, the people are far closer than in the past, however, separated by vast distances. In other words, our world is shrinking.

4.1 Globalization widens horizons

Globalization opens doors for international trade as it provides a competitive edge to businesses to outsource raw materials at lower costs. It allows developing countries to utilize lower labour costs and developed nations to avail capital, technical expertise, and experience. In this way, different parts of a product are made in different parts of the world. Globalization has been used by the automobile industry where different motor parts are assembled in different countries. Not only products but services can be outsourced too. For instance, many companies in the United States have outsourced call centres or information technology centres from India and automobile companies have relocated their operations to Mexico where labour costs are lower, as a part of the North American Free Trade Agreement (NAFTA). This raises the national economy and standards of living of people as more jobs are generated for countries where jobs are needed. Globalization increases the possibility of developing countries becoming important players in the international arena. Low wage rates and the availability of skilled manpower have made India a destination for global outsourcing. Consumers gain too. Businesses can provide goods or services at a lower priceto the consumers. The reason behind this is that globalization decreases the cost of manufacturing.

4.2 Downsides: Small Fish in a Big Sea

Market-driven globalization has surged the economic disparities between nations and people. It has compromised the welfare and identity of local producers in developing nations. One analogy puts it this way: local producers or small businesses are like small fish in a big sea with other small and large fish, i.e., small and large businesses. Small fishes compete for the same food while the large fishes eat the small fishes for their sustenance. Globalization has enabled large industries into countries that previously were off their radar. It has strongly hit local producers as they are unable to compete with the MNCs because MNCs produce at a large scale and sell at comparatively lower rates. Local producers are unable to cut down on costs as they do not have much wealth. As a result, they cannot compete with large producers. Batteries, capacitors, toys, tyres, dairy products and vegetable oil are some industries where small manufacturers suffered due to competition. The aftermath was that small businesses shut down and many workers became jobless.

MNCs order products from Indian exporters who provide the cheapest products. To get large orders, exporters reduce labour costs. Workers work temporarily for long working hours. They work overtime and still, their wages are less. In this way, workers are also impacted by globalization. In Bangladesh, for example, the garment industry employs an estimated 4 million people but an average worker earns less in a month than a US worker in a day.

Local producers are small in business size and operation. Thus, the goods they produce only comply with local demands, tastes and preferences. Furthermore, some of them are dependent on raw materials which are available only in a particular season, i.e., seasonal businesses are prevalent. Limited storage and production supply curb the efficiency and skills of producers which makes them incompetent. This is true for rural non-farm enterprises which are dependent on the supply of agricultural production.

4.3 World Trade Organization (WTO)

The World Trade Organization is an international organization set up in 1995 that oversees the rules for trade between nations and establishes a rule-based trading regime in which nations cannot place arbitrary restrictions on trade. It facilitates bilateral and multilateral trade and helps producers of goods and services manage their businesses. Currently, there are 164 member countries which represent 98% of world trade. It is the successor organization ofthe General Agreement on Tariffs and Trade (GATT), founded in 1948.

4.4 Case Study: Mexican Dairy Production

The following case study shows the impact of globalization on local producers of Maravatio, Michoacan. The information presented is a part of the results obtained by 'The Economic Geography of Globalization' edited by Piotr Pachuca.

In central western Mexico, Maravatio municipality is part of the state of Michoacan. It is a high-poverty country where agriculture and livestock are the main activities of people. Maize is the central crop which is cultivated here. After the liberalization of the Maravatio market, the import of basic goods like maize and milk at cheap rates brought down the price for these amenities. It was difficult for the local producers to cut down on costs. The quality of products also posed a new challenge for the producers as the imported goods were cheap and of better quality than what the local producers produced. Many producers, as a result, left the market as they couldn't compete with international prices.

To protect the local small businesses, the government aided these producers by providing them with better infrastructure and operational facilities so that they can compete withinternational companies. New technology helped them improve and match up to their competitors and survive in the market. This helped the Maravatio producers push themselves up to global standards.

4.5 Conclusion

Globalization is here to stay. While it is a threat to local producers, it is very essential for the growth of a country. Local producers should try to adapt themselves to the dynamic environment. They need to improve their quality and efficiency in the face of international competition and ensure their survival in the market. Modification and diversification of production are paramount to comply with international standards.

5. The Impacts of Globalization on Living Standards

5.1 Introduction

Globalization is an ambiguous term that first appeared in the 1970s. It means differently to different people. Globalization in its basic economic sense refers to the adoption of an open and unfettered trading market through the lowering of trade barriers, removal of capital controls, and by the liberalization of foreign exchange restrictions. It gradually changed the world into a global village. It refers to the growing integration of economies and societies around the world. The economic dimensions include increases in the flows of trade in goods and services, capital and ideas as well as mobility of individuals across borders. While most economists agree upon the overall substantial benefits of globalization, especially in terms of growth and improvements in living standards, it is also recognized that the extent the countries have benefited has been so far uneven.

Globalization has affected the lives of people and their way of living very differently. It has played an important role in developing countries and brought a drastic change in economic processes, technological developments, political influences, health systems and social and natural environmental factors which ultimately improved the standard of living for people. It has created new opportunities for developing countries as well as for developed countries too. Such as technology transfer holds out promise, greater opportunities to access developed country's markets, growth, improved productivity and living standards. However, it is not true that all effects of this phenomenon are positive. This is because globalization has also brought up new challenges such as environmental deterioration, instability in commercial andfinancial markets, and increasing inequality across and within nations. Although it made relationships between developed and developing nations stronger, it made each country dependent on the other one.

5.2 Impacts of Globalization

Ample empirical evidence shows that openness combined with sound domestic policies leads to faster growth, and faster growth transfers directly into increased living standards. A positive future impact of globalization on growth is also envisaged in the OECD 1997 study, which forecasts that the share of the global GDP of Brazil, China, India, Indonesia, and Russia will increase. Globalization is the driving force behind increased GDP per person.Due to globalization, there is an increase in productivity in the economy which significantly improved the overall GDP. The higher the GDP, the better off the country and its people’s living standards are supposed to be.

5.2.1 Life Expectancy

It is observed that the living standards and life expectancy of developing countries increase through economic gains from globalization. According to the World Bank (2004) "With globalization, more than 85% of the world’s population can expect to live for at least sixty years and this is twice as long as the average life expectancy 100 years ago". In the panel of 92 countries covering the period from 1907 to 2005. Using different techniques and samples, we find economic globalization in developing countries has a robust positive effect on life expectancy. However, some say that globalization also harms the life expectancy rate as it facilitates the spread of many new diseases like AIDS/HIV, bird flu, swine flu, and many other contagious diseases from a developed nation to the developing one. This influences the living standard and life expectancy. According to the World Bank (2004), the AIDS crisis has reduced the life expectancy in some parts of Africa to less than 33 years of age resulting in low living standards.

5.2.2 Education System

Globalization has improved education by allowing students to have easy access to the global world. There is an ultimate increase in education abroad. It raises the people’s standard of living as International Education has a positive effect on the local economy. And these students have a positive effect on the real estate industry in buying and renting houses in that area. There is a lot of demand from overseas buyers which directly increases the living standards of local people. Moreover, international education supports job creation. The Group of Eight Australia (2014), highlights that every 10 international students could create 2.9 jobs for local people, to improve local people’s income and living standards. On the other hand, we can see that education has increased in recent years because globalization has been a catalyst for jobs that require higher skill sets. This demand allowed people to gain higher education ultimately resulting in improving living standards.

However, some researchers say that with the increase in globalization, the quality of education reduces as academic institutions adopt a standardized education system equipped with all facilities that increase their cost which normal people cannot afford. Since there is no basic education, the people have to work for low minimum wages which reduces the quality of living.

5.2.3 Technological Advancement

The major milestones were the development of the internet and increased transportation technology. These two advances made the world set higher living standards. Countries such as Asia and Latin America have harnessed these technological advances. Medical technology advancement is another thing that brings a positive impact on living standards.

5.2.4 Health System

Globalization marked a significant impact on human health. It raised people's standard of living by providing better health services to them. Huynen et al. (2005) state that the World Health Organization (WHO) and World Bank play an important role in global health governance because health policy improved people's income and raised living standards. Secondly, medical technology also improved the standard of living. Sharing of the latest medical technology and research findings reduced the chances of pandemic diseases such as AIDS/HIV and SARS. Thus, health services impacted the standard of living by setting up health policies and sharing medical technology globally wide.

Globalization in healthcare has integrated nations of the world into a collaborative system. Where one developing nation might not have the right resources to handle the medical need, other nations can step in. It has pushed medical tourism and the efforts of doctors without borders in a positive direction. Medical tourism is travelling from one's own country to another for medical care. While that can mean a person travels to a more developed country for the care they cannot get in their own countries, today it often refers to someone who travels from a more developed country to a less developed one. Health organizations can save on costs by specializing in certain areas. They might outsource diagnostics imaging interpretations to save money. The only disadvantage that globalization has on the health of human beings is the more rapid spread of diseases and the introduction of new infectious diseases.

5.2.5 Natural Environment

After globalization adopted the benefits of economic growth, business people come with their new start-ups and industries ultimately destroying the natural environment. Air pollution that occurred due to the high rate of industrialization deteriorates the health and quality of living standards. Another consequence of rapid globalization is water pollution due to chemical waste in water bodies which highlights environmental and social change. In this context, China is suffering the most. Due to industrial chemical disposal in water, 70% of its rivers arepolluted and are not fit for consumption for any purpose (Huang 2003). This pollution was so bad that almost 100,000 people lost their lives due to pollution-related illnesses. Thus, it can be concluded that the high rate of industrialization is a result of globalization, which produces air pollution from chimneys and water pollution from chemical waste due to which the quality of life drops along with the living standards.

5.3 Conclusion

From the above research, it has been concluded that Globalization has a positive impact on improving people's living standards but there are some negative impacts too:

- Globalization has improved the life expectancy rate of developing countries but at the same time, it also opens the borders for many pandemic diseases to spread easily.
- It facilitates International Education which ultimately results in improving quality of life and living standards. It helps to get to know about the different cultures which are followed in different countries. It also benefits the real estate industry and creates more job opportunities.
- Technology advancement after globalization has affected living standards and quality of life positively. Medical technology has become a boon for human beings.
- Globalization provides better health services by setting up effective health policies and outsourcing work at a lower cost through a borderless world. Medical tourism has also become possible after globalization.
- After Globalization, the natural environment and living beings have suffered a lot due to different types of pollution and the destruction of national resources. Industrialization left behind the waste materials that affect the air and water bodies lowering health and enhancing the living risks for survival.

6. Conclusion

Considering the impact of these factors, globalization of finance causes much of the inequality produced by globalization itself while globalization of trade also causes inequality but it has a much smaller impact. The impact depends on the stage of the country's development and the education level of its workforce. The inequality-raising impact of inward FDI is related to the human capital level of the country. This happens as FDI usually happens in sectors where a highly skilled workforce is needed, hence resulting in an increase in demand and wages for those higher-skilled workers. The quality of the country's financial institutions and the role of the government also play an important role.

While globalization is a threat to local producers, it is very essential for the growth of a country. Local producers should try to adapt themselves to the dynamic environment. They need to improve their quality and efficiency in the face of international competition and ensure their survival in the market. Modification and diversification of production are paramount to comply with international standards.

Technology advancement after globalization has affected living standards and quality of life positively. Medical technology has become a boon for human beings. It provides a better health service by setting up effective health policies and outsourcing work at a lower cost through a borderless world. Medical tourism has also become possible after globalization. It has improved the life expectancy rate of developing countries but at the same time, it also opens the borders for many pandemic diseases to spread easily. After globalization, the natural environment, and living beings have suffered a lot due to different types of pollution and the destruction of national resources. Industrialization left behind the waste materials that affect the air and water bodies lowering health and enhancing the living risks for survival.

The age of globalization promises global prosperity. However, this is also an age of large inequalities that can eventually undermine global integration and stability thus hampering long-run growth prospects. The results show that income inequality has increased mainly in middle- and high-income countries, and less so in low-income countries. It is the developed countries, rather than the developing countries, that oppose greater integration. That is, the developed countries do so because of increased inequality and the implied political consequences in their economies.

In India, after the globalization process started in 1991, higher GDP and income growth are leading to lower levels of poverty in the country but inequality has increased because of the distribution of income tilted in favour of the rich. This problem can be tackled by bringing some regulations relating to the distribution of income and wealth that can bring equality in society.

References

1. Agosín, Manuel R., and Ricardo Mayer. "Foreign investment in developing countries: does it crowd in domestic investment?

2. Melchior, Arne and Telle, Kjetil and Wiig, Henrik and Affairs, Norway. (2000). Globalisation and Inequality: World Income Distribution and Living Standards 1960-1998.

3. Wilfred I. Ukpere Andre D. Slabbert, (2009),"A relationship between current globalisation, unemployment, inequality and poverty", International Journal of Social Economics, Vol. 36 Iss 1/2 pp. 37 – 46

4. Dreher, Axel, and Noel Gaston. "Has globalization increased inequality?" Review of International Economics 16.3 (2008): 516-536.

5. Hussain, Shahzad, Imran Chaudhry, and Mahmood-ul Hasan. "Globalization and income distribution: evidence from Pakistan." (2007).

6. Jaumotte, F.; Lall, S.; Papageorgiou, C. (2013): Rising Income Inequality: Technology, or Trade and Financial Globalization? IMF Economic Review, 61(2), 271-309.

7. Figini, P.; Görg, H. (2011): Does Foreign Direct Investment Affect Wage Inequality? An Empirical Investigation, The World Economy, 34(9), 1455-1475.

8. Santarelli, Enrico, and Paolo Figini. "Does globalization reduce poverty? Some empirical evidence for the developing countries." (2002).

9. Heimberger, Philipp. "Does economic globalisation affect income inequality? A meta-analysis." The World Economy 43.11 (2020): 2960-2982.

10. Lessmann, Christian. "Foreign direct investment and regional inequality: A panel data analysis." China Economic Review 24 (2013): 129-149.

11. Mihaylova, Svilena. "Foreign direct investment and income inequality in Central and Eastern Europe." Theoretical and Applied Economics 22.2 (2015).

12. Wei, Shang-Jin, and Yi Wu. "Globalization and inequality: Evidence from within China." (2001).

13. Kai, Hisako, and Shigeyuki Hamori. "Globalization, financial depth and inequality in Sub-Saharan Africa." Economics Bulletin 29.3 (2009): 2025-2037.

14. Distributional effects of globalization in developing countries. Pinelopi Koujianou Goldberg Nina Pavcnik

15. Impact of globalization on the distribution of income, poverty and inequality in India. Rajeev Kumar Upadhyay

16. The evolution of world income inequality: assessing the impact of globalization. Andrés Solimano

17. Impact of economic globalization on income inequality: developed economies vs emerging economies. Inmee Baek and Qichao Shi

18. The effects of globalization on income inequality: developing countries. Dr Levent Yılmaz

19. Does globalization affect top income inequality? Rene Cabral Rocio Garcia Diaz Andre V. Mollick

20. Has globalisation increased inequality? Dreher, Axel; Gaston, Noel

21. Rising income inequality: technology, or trade and financial globalization? Mr. Chris Papageorgiou, Mr. Subir Lall, and Ms. Florence Jaumotte

22. Globalization and its impacts on small businesses- Unleashed software. https://www.unleashedsoftware.com/blog/globalization-impacts-small-businesses

23. 25. The Impact of Globalization on Small-Scale Rural NonFarm Enterprises in Developing Countries: A Review of the Literature- Tšepiso A. Rantšo

24. Globalization Effects in Family Farms: a Case of Mexican Dairy Production- Piotr Pachura https://www.intechopen.com/chapters/16926 https://knowlaw.in/index.php/2021/01/06/globalization-impact-local-market/

25. WTO- Investopedia https://www.investopedia.com/terms/w/wto.asp https://www.wto.org/

26. World Development Report, Vol 38, Issue 9 September 2010, Pages 1191 – 1203

27. The Impact of Globalization in the Developing Countries by Fairooz Mustafa Hamdi

28. Essay on –Does globalization improve living standard‖ published Aug 10th,2021

29. UKEssays. (November 2018). Economic Globalization and Rising Global Living Standards Economics Essay. Retrieved from https://www.ukessays.com/essays/economics/economic-globalisation-and-rising global-living-standards-economics-essay.php?vref=1

30. Globalization and Politics: The Effect of Globalization on human life Aspects by Mohammad Abo Gazleh.

31. Globalization and growth in recent research by Zuzana Brixiova and Dalia Treigiene 34. Discussion on Impact of globalization in living standards.

32. Essay on Globalization and Higher Living Standards.

TERRORISM IN AFGHANISTAN:
A STORY OF THE CLASH OF IDEOLOGIES

By Suprithi Sudharsanan
Lady Shri Ram College for Women

Abstract

This article aims to brief the reader about the evolution of the political climate in Afghanistan which has been fragmented due to continuous war. This is put forth from a Soviet point of view. The main points of examination are the reasons for Soviet invasion and the ideology of the Taliban. More recently, as of 2021, as the world stood by and watched, the self-proclaimed warriors of Jihad and protectors of Islam took over Kabul. In the entire process, one pertinent question that stands out is: should the world be allowed to recognize the Talibanas legitimate rulers of Afghanistan instead of branding them as terrorists?

Keywords: Political Economy, Terrorism, Marxism, Leninism, KGB, Taliban, Sharia 2

Introduction

The most basic principles of terrorism are at complete odds with the fundamentals of Marxism. Marx does not deny the violence that is inevitable during tumultuous changes from one economic system to another. However, acts of hijacking planes, kidnapping and killing selected targets (read tyrants) by small groups of people has no place in Marxian ideology of a class struggle. Marx showed time and again that the reasons for upheaval were born out of oppression, discrimination, the division of society into classes with the majority being exploited by a small privileged minority. An economic system, he argues, cannot be replaced by attacks or creating fear in the minds of people, but through a long-drawn-out class struggle.

Marx and Engels first give the readers an insight into their thoughts on terrorism during the rise of the Fenians, who were dedicated to the pursuit of Irish independence from Britain, by force if necessary. Their movement however, was highly divided and acrimonious, with the final straw being the 'democratic decision' to accept the Anglo-Irish Treaty of 1922.

Two aspects of Marxist observation can be examined during their revolutionary days. One is an understanding that socialists do not put conditions on their support for movements of national resistance to imperialist oppression. The second is an understanding of the limitations of such movements the idea that a select few can produce change through conspiratorial methods inevitably isolates them from the mass of the population and dooms them ultimately to failure (Jenkins, Marxism and Terrorism, 2006).

Leon Trotsky also noted in his writings that terrorism carried out individually was not supported by Marxists as they believe its actions were belittling the concept of class struggle. Essentially, he advocated for the ‘We’re all in this together’ concept over individualism. Only class struggles can successfully replace one system with another. As a case in point, he says, the more ‘effective’ the terrorist acts, the greater their impact, the more they reduce the interest of the masses in self-organization and self-education. But the smoke from the confusion clears away, the panic disappears, the successor of the murdered minister makes his appearance, life again settles into the old rut, the wheel of capitalist exploitation turns as before; only the police repression grows more savage and brazen. And as a result, in place of the kindled hopes and artificially aroused excitement comes disillusionment and apathy.

With these explanations in mind, the author turns to Afghanistan, the ground for ideological birthing, clashes and deaths. The country was a very different place before 1979. Burqas were optional, modern construction took place alongside traditional buildings and overall, a prosperous society. Afghanistan was courted by both the USSR and the USA during the Cold War era, though officially it was a neutral state.

In the winter of 1979, the Soviets officially invaded Afghanistan. In response, USA sent its own troops and ammunition to counter the Soviet influence in the region. What followed was a Soviet retreat ten years later. The world failed to realize that it was just the beginning. The Americans did not think that they would be stationed in the Asian country for the next thirty years.

The aim of this paper is straightforward, albeit complex. An interpretation of the various occurrences from the 21st century point of view. It presents a brief sketch on the following: A history of Soviet ideologies and how terrorism was incorporated into their thinking. It will then proceed to talk about the reasons for Soviet invasion and explore the ideologies of the Taliban and the controversies surrounding its legitimacy as a government: are people of a nation ruled best by themselves? There seems to be a bit of a moral dilemma here as the implications of this statement are realized. Indians believed in this statement, as did many other British colonies, around seventy years ago. Would it be rational to apply the same logichere? Or are statements to be interpreted as per our convenience given the situation at hand?

Lenin and Early Views on Terrorism

Leninism evolved from Marxism and was particularly influenced by his own personality and the experiences that shaped the latter half of imperial Russia. The idea that force was to be met with force was a common belief shared by all Marxists, but in Lenin's case it meant bloody violence-employing revolutionary violence to counter reactionary violence by autocrats. That is, violence overcoming violence. A Russian Marxism came into being with specific emphasis on political violence as a result of Tsarist policies. Here, the two words guerilla warfare and terrorism are often confused with each other. While Boaz Ganor identifies Lenin and his followers as advocates of guerilla warfare, Lenin's interpretation is not clear and often the two words are used interchangeably. Guerilla units and their military strategies mirror what Lenin calls mass terror and hence is more applicable as of now. In 1901, Lenin declared that he had never denounced terror as a means of struggle and that it is perfectly suitable at crucial junctures in war. According to him, two conditions were critical for its proper functioning. One, the existence of a 'central body' directing all ops, and two, strong local revolutionary organizations (neither of which existed). However it wasn't presented as a necessary requirement. Lenin was still more comfortable with politically educating the masses who could then be brought together to topple the autocratic governmentand at best terror could play a subsidiary role in the process. Even during the heights of revolutionary uprising in Russia, Lenin asked his workers to exercise moderation and not go to extremes, for he felt that it would only squander the forces.

Stalin and State-Sponsored Terrorism

Through his infamous "dekulakization" campaign at the beginning of the 1930s, Stalin unleashed terror against the peasantry. The 1930s horror was planned out in phases. The reprieve of 1934 came after the purges of 1933. The purges started up again in late 1934 and continued through late 1935. The Great Terror of 1936–1938 began in early 1936, followed by a brief lull that peaked in 1937. The terror of Stalin affected both the masses and the elite, terrorizing both the party membership as well as peasants and workers on the one hand, and top officials in the military and governmental systems on the other. Stalin wanted to build a brand-new political apparatus that was only focused on furthering his agenda.

Up until the Moscow trials smashed it to pieces in 1936, the old guard had managed to hold on. Stalin was seen as the final bulwark against the arbitrary nature of the terror. Between 1929 and 1953, the Soviet Union's communist government was the most ideal example of state terrorism. No other nation had ever experienced the systematic imposition of terror by a police state infrastructure.

Cold War Era

"The USSR developed two tools that changed the world: airplane hijackings and state-sponsorship of terror."

The Soviet Union and its supporters openly backed terrorism as a strategy to trouble and weaken its rivals politically. In the 1960s, 1970s, and 1980s, the numerous leftist German terrorist cells received funding, equipment, and "networking" chances from the East German Stasi and KGB. The Red Brigades in Italy, the Red Army Faction in Germany, and the 2nd June Movement all shared Marxist ideologies as well as a hatred of the United States, were Palestinian sympathizers, and opposition to the generation that had supported the Nazis and Fascists and included some of its still-powerful members. They made solid bases for a fifth column during the Cold War. It was not simply Europe: Soviet resources, money, training, and direction were distributed all over the world, either directly through the KGB or via the organization of important allies, including the Rumanian Securitate and the Cuban General Intelligence Directorate. It would not be wrong to say that Russia is the birthplace of modern terrorism.

The United States Philosophy: Pre-Cold War

The US was no stranger to terrorism. It had supported terror movements in Italy during the Years of Lead in the 1960s, as a strategy of tension, a policy wherein violent struggle is encouraged rather than suppressed. General Gianadelio Maletti, commander of the counterintelligence division of the Italian military intelligence service between 1971 and 1975, claimed that his men in the vicinity of Venice discovered a right-wing terrorist cell that had been supplied with military explosives from Germany and claimed that US intelligence services instigated and abetted right-wing terrorism in Italy during the 1970s. The neo-fascist—groups according to inquiries made—La Fenice, Avanguardia nazionale, and Ordine nuovo were "troops" of "clandestine armed forces," under the command of elements of the "state apparatus associated to the CIA.

Throughout history, the USA has acted only in its best interests and furthered any agenda that is anti-communist. It supported right wing groups as its antagonists in Italy were communist organizations aiming to establish a Marxian global order. This was one of the major motivations for it to intervene in Afghanistan fearing it would become another puppet state of the Soviet Union.

Afghanistan before 1979: A Brief Sketch of The Unsteady Political Climate

After defeating the British in the third Afghan-British war in 1921, Afghanistan was a monarchy under the rule of Amir Amullah Khan. He introduced a series of socio-economic reforms to revamp the afghan economy and catch up to the rest of the world. However, his attempts to limit the power of the Loya.

Jirga, the national council, was met with protests. He was forced to abdicate and leave the country. Zahir Shah was made the king in 1933. He ruled for the next thirty years, bringing much needed stability and peace to the country whilst introducing modernization reforms. The king's cousin and pro-Soviet Gen. Mohammed Daoud Khan-the country's Prime Minister turned to the communist country for financial and military support. He also implemented a number of social reforms, one of which was the expansion of women's rights in public. Around this time, the Afghan Communist party was founded in secret and headed principally by Babrak Karmal and Nur Mohammad Taraki. In 1973, Daoud Khan overthrew Zahir Shah in a coup and declared himself President. The Republic of Afghanistan was born with firmties to the USSR. However, he was killed in a communist coup in 1978. Babrak Karmal was appointed Deputy Prime Minister, while Nur Mohammad Taraki assumed power as president. They declared their independence from Soviet sway and made it clear that their programmes were grounded in Afghan nationalism, Islamic ideals, and socioeconomic justice. Taraki and the Soviet Union established a friendship pact.

From here on things started moving downhill. There was an intense power struggle between Taraki and Hafizullah Amin and the former was killed in the fighting in 1979. Simultaneously, Khan's social reforms angered orthodox Islamic and ethnic leaders, who started an armed uprising in the countryside. To oppose the government supported by the Soviet Union, the guerrilla group Mujahadeen was established in June 1978. The final blow was dealt when American ambassador Adolph Dubbs was killed and the US cut off its assistance to Afghanistan in late 1979.

The series of events that ultimately led to the Soviet invasion give us a hazy picture of the ideologies in circulation at the time. Given the mostly successful USSR policies, recently freed colonies and countries wanted to follow a similar path to establish a working-class society with equal wealth, resources and rights for everyone. Muslim fundamentalists wanted to stick to Islamic ideals tempered by Afghan specific conditions.

A Possible Interpretation of Events

Soviet invasion: a perceived threat to ideology?

There were many theories doing the rounds when the USSR invaded Afghanistan, which continued even after the war. New documents declassified recently by the CIA shed some light on probable reasons for invasion. Georgy Kornienko served as Andrei Gromyko's top deputy for a long time, and was expected to succeed him. However, Gorbachev chose Eduard Shevardnadze as his replacement in 1985 and effectively pushed Kornienko back into the shadows. His memoirs, which were released in 1992, provide a stunning insider's perspective of Gromyko's thinking and of the Soviet decision-making process towards Afghanistan in 1979. They identify October 1979 as the turning point of USSR's penultimate decision.

At that time, the Soviet was led by Andropov, the USSR KGB head and later the premier of the Soviet Union, and Minister of Defense Ustinov, often described as "the most Stalinist of all the Commissars", having been groomed by Stalin to maintain the established system. It was ultimately Ustinov who gave the go ahead. His decision to send in Afghan troops, a complete U-turn from his former principle of expediency, was justified based on American action in the Persian Gulf (in the fall of 1979) and a possible Iranian invasion doing the rounds. His exact words were, "If the United States can allow itself such things tensof thousands of kilometers away in the immediate proximity of the USSR borders, then why should we be afraid to defend our position in Afghanistan." At that time the said country in question was going through tumultuous changes and was in a vulnerable position as mentioned in the previous section. The Soviets were apprehensive of an American invasion in their own backyard coupled with a highly possible introduction of Western ideologies in a nation that had so far been carefully groomed by them.

Terrorism Propagated By KGB

The KGB was the main security agency for the Soviet Union. Its main objective was to suppress dissent within Russia and the satellite republics of the Soviet Union by first identifying and then silencing dissidents who were advocating anti-Communist politicaland/or religious views.

KGB agents frequently utilized extraordinarily aggressive methods to complete their job. With a few notable exceptions, the KGB avoided getting directly involvedin terrorist operations, but it was nonetheless crucial in directing help toward these organizations and providing the Soviet leadership with intelligence on their actions.

Formerly classified KGB documents on the Soviet invasion of Afghanistan show the concerted attempts of a major power to control events in a vassal state and how badly they failed to do so. The 178-page study demonstrates that, even before the Communist takeoverin 1978 and the Soviet occupation in 1979, the KGB had a significant presence in Afghanistan. There were hundreds of active agents in the nation, and they played a part not only in Afghanistan but also in other nations like Pakistan and Iran. Prince Muhammad Daud’s administration (1973–1988) collaborated extensively with the Soviet Union, and some of Daud’s ministers had relationships with the KGB. Despite receiving advance notice of the plot against Daud, the Soviet Union was not involved in the Afghan Communists’ takeover of Daud’s government in April 1978. The KGB lavishly expended funds to quickly establish local Afghan communist intelligence services, the KHAD being the most infamous for its useof torture and assassination. The data demonstrate that CIA-supported Mujahideen organizations, their training grounds, and their headquarters were significantly penetrated by KGB-trained spies. It illustrates the frequently at odds diplomatic, military, KGB, and party adviser rivalry among the various Soviet entities functioning in Afghanistan.

The stories of Operation "Raduga", the KGB’s high-risk plan to eject three Afghan cabinet ministers from the country in September 1979, are just some of the numerous new information on KGB operations in Afghanistan and other nations. Throughout the 1980s, the KGB conducted a large number of covert military "false flag" operations within Afghanistan. In these, Soviet-trained Afghan guerrilla troops pretended to be anti-Soviet Mujahideen rebels supported by the CIA in order to stir up trouble and flush out real rebels for a counterattack. According to Mitrokhin, 86 armed, KGB-trained "false gangs’’ were in operation throughout Afghanistan by January 1983. The ongoing Mujahideen infighting in the 1980s also receives new insight as a result of these revelations. Some of the clashes between Mujahideen factions in the 1980s, which laid the groundwork for the devastating civil war in the 1990s, may have been intentionally carried out by paid KGB agents.

US and the Mujahideen Response

“Although the purpose of the Soviet involvement in Afghanistan is of a political nature, its economic impact of its involvement has created an adverse economic by product…..there is danger of hyperinflation…..more people will either leave Afghanistan or be forced to support the present regime….” (Declassified documents, Defense Intelligence Agency, USA, May 1983). It would not be wrong to say that the US, apart from ‘freeing the people of Afghanistan and showing them the light of the world’, heavily exploited the Islamic rebels. They were, at moments in time, proud of what they had created which drove the Soviets out. The aftermath of their over eagerness ended in another war after 9/11 when they received a reality check. The involvement of the United States in the cold war era will not be explored inthis paper as it majorly focuses on the aftermath. What we do know is that the US covertly backed the local Islamic rebels who were opposed to a soviet based regime.

Examining the Islamist Fundamentals

The Taliban

"The CIA made a historic mistake in encouraging Islamic groups from all over the world to come to Afghanistan."

When the Soviet Union invaded Afghanistan in 1979, the Taliban movement’s foundations were laid. The Soviets were in Afghanistan to help a communist government that was backed by a small group of largely urban citizens. However, the vast majority of Afghans resided in rural areas, where tribal and ethnic groupings held sway and life was centered around traditional Islamic beliefs.

Following the evacuation of Soviet soldiers from Afghanistan, the Taliban, or "students" in the Pashto language, first appeared in northern Pakistan at the beginning of the 1990s. Rural Afghans organized into Mujahideen groups and expelled the Soviets. But after that, they started fighting among themselves. A group of Islamic instructors and pupils known as the Taliban formed from that disarray. The majority Pashtun movement is thought to have originated in Saudi Arabia-funded religious institutes that promoted a harsh version of Sunni Islam. They swept the nation, eliminating Mujahideen organizations and establishing tightlaw and order. Their belief broadly lies in the Sharia law of Islam a highly controversial subject for many decades now.

Sharia Political Economy: The Fundamentals

Ibn Khaldun’s (15th century’s) framework provides a summary of the interdisciplinary dynamic model for Islamic socio-economic system:

“The strength of the sovereign (al-mulk) does not become consumed except by implementation of the Shari’ah;
The Shari’ah cannot be implemented except by a sovereign (al-mulk);
The sovereign cannot gain strength except through the people (al-rijal);
The people cannot be sustained except by wealth (al-mal);
Wealth cannot be acquired except through development (al-„imaran);
Development cannot be attained except through justice (al-„adl);
Justice is the criterion (al-mizan) by which God will evaluate mankind; and the sovereign is charged with the responsibility of actualising justice”

(Chapra, 2000: 147-8).

According to Noureddine Kirchene and Abbas Mirakhor many Muslim nations that gained independence after being colonised opted for a Leninist-Marxist system and missed out on decades of economic growth.

Except for those areas where Islam forbids it, a general Islamic economic model welcomes science and uses economic theory (e.g., interest rates, gambling, violation of property rights, etc.). But it also possesses traits that give it dimensions that are not mentioned in conventional economic theory. It is founded on concepts that acknowledge: the total supremacy of Allah; the idea that a person is more than just a physical entity; the idea that everything originates from Allah and returns to Allah; and in an Islamic economic model, there is no notion of "mother nature."

The Sharia did not leave much room for economics. Wherever the issues of prosperity of the community or welfare of the common person were discussed, this was part of the same tradition of exhortatory writings to the ruler about the value of a sound currency, about fairness in dealings and about the risks of punitive taxation. Otherwise it was assumed that people were ordained to conduct their business affairs and transactions within the bounds of the Sharia and its detailed norms concerning the permissible and the lawful in economic conduct and behaviour [p. 209 The Crisis of Islamic Civilisation by Ali Allawi, Yale University Press 2009].

Some basic pillars of the economy that the Taliban claims to adhere to are given below:

The role of zakat:

Islamic finance has long been viewed as the financial activity where social equality is strengthened via the imposition of zakat in the Quran and Sunnah. The verses in the Quran that discuss interest are always preceded by or followed by verses that call for zakat. Therefore, when social equality is guaranteed by zakat, the need for lenders to charge interest and the desperate circumstances in which the impoverished must accept it will vanish. Islamic finance is predominantly directed toward wealth development and investment, with considerably less emphasis on consumption.

Capital:

The Quran makes clear the concept of capital. Productional capital, working capital, and financial capital are concepts. The traditional view of growth acknowledged the need of capital formation for economic expansion. Economic expansion and the accumulation of capital can be easily correlated.

Labor markets:

Eliminating labour market distortions with the aim of maximising employment and promoting exports is one of the key goals of an Islamic economic model. In order to balance labour markets, it seeks to establish ideal wage flexibility.

The role of the state:

The state is in charge of upholding law and order, transferring income to the underprivileged, creating justice, offering public services, and making investments in economic development.

Apart from these, this form of economic system also makes space for legal jurisprudence, investment in human capital and social infrastructure, et al.

The authors express disappointment at the inability of the Muslim countries to follow proper Sharia law, to quote, an Islamic economic model rests on Allah's Sharia; it aims at operationalizing the Sharia laws into economic life. Built on interest free finance, balanced fiscal policy, and redistributive zakat, an Islamic economic model could offer a robust macroeconomic framework for a sustained and balanced economic growth.

Analysis and Concluding Remarks

The entire assimilation of ideologies and historical facts in the previous sections indicate time and again that history need not necessarily be this unfortunate. There were many instances where each stakeholder could have restrained himself envisioning the struggle in the long run and for the sake of the innocent citizens of Afghanistan. Would Marx have approved? The fact that Lenin treated terrorism as a probable alternative to crush dissent and achieve political objectives shows a clear demarcation of thinking that was furthered by Stalin in the most violent manner possible. KGB in turn was influenced by a form of Russian Marxism that in the author's opinion was the most brutal form of Marxism in its time. In the end a lot of questions remain unanswered and remain open only to speculation.

There is plenty of research out there justifying or criticizing the USA's involvement in Afghanistan and hence it is not dealt with in this paper. Instead, after examining the kind of ideologies that have been doing the rounds in Afghanistan and using common sense, the question to be asked is whether people of a nation are best left to rule themselves?

Consider a world where the USSR did not invade and Taraki continued to rule. He was known to have adopted a groundwork for deeper relations with the US which initially gave way to skepticism in the Soviet camp. As history goes, Amin deposed Taraki and claimed the title of President. This is from where history can go two ways. Mujahideen take formation and rebel against the Afghan government with the main motive being to establish a society of Islamic order. Many things could have happened. Amin could have crushed the revolt or could have lost to them; a possible power sharing is also not ruled out. What climate of political economy would have existed?

The world is a diverse place with many cultures, traditions and beliefs and it is on these that the modes of production have, in a way, been dependent on. Be it the fall of the Roman Empire which led to emergence of feudalism or the forceful imposition of communism in USSR which ultimately led to revolt. Life is a full cycle. Likewise, Marx sticks to his principle of emergence and deaths of political systems which will ultimately—according to hisinterpretation of the world-lead to socialism—a heaven on earth.

But what the world witnessed in Afghanistan was a series of trial and error trying to determine which rule suited its people the best. Albeit done for political purposes, it serves us a mild taste of what is to come-if there exists a belief in the ultimate revolt against the existing political, social and economic order which would lead to the establishment of communism. Should the Taliban be designated as a terrorist government? After all, they fought for their own land and rights to be restored to their own people instead of being a vassal state to any super power. There are many factors to be considered here. The Sharia law highlighted above has come to be associated with the oppression of women. Apart from that, there are also many contradictory interpretations of the law itself. What we see today (and way back in 1996) prima facie is the suppression of the rights of one gender, essentially half the workforce of the nation, whereas the Islamic economic system in its most basic framework advocates for equal employment and abhors idleness. Female Muslim activists in other parts of the world use the Sharia to advocate for equal rights. For example, girls should be allowed to play sports as denying that right goes against the principle of 'giving rights to human beings' contained in the sharia. These women believe in an inherent feminism present in the sharia. It is just a matter of interpretation. One other factor that is to be considered along with the Taliban rule is that what does it mean for its diametrically opposite neighbour (in all aspects)—India?

In line with their desire to demonstrate greater autonomy away from Pakistan, the Taliban have been working to strengthen their ties with India in order to take advantage of that country's growing normative and material capacity. Since their return, the Taliban have also made clear that they want to strengthen their ties with India on the diplomatic and business fronts. One example of this is their support for the Chabahar Port project in Iran, which will serve as a hub for connectivity and trade throughout the area. It is noted that India has also reciprocated to a certain extent by offering aid and reopening its embassy in Kabul, albeitwith just a technical personnel in place. In June of this year, India sent its first official mission to Afghanistan, after the Taliban takeover, opening the door to direct contact with senior Taliban leaders. This slight improvement of relations in the region signals there's hopefor the future. While the rest of the world, with the possible exception of China and Russiaare yet to formally acknowledge the legitimacy of the Afghan government, the fact of the matter is that their versions of a prosperous society are rested on their holy books, a belief which is vastly different from the ideals and ideas that have been consciously allowed to flourish consciously away from religion as far as the West is concerned.

The Islamic political economy essentially calls for an overall prosperous society though it does not explicitly advocate for a proletariat system. What it does believe are equal opportunities in employment and the ability of the people to live meaningful lives. It is an amalgamation of both the communist and capitalist societies which prima facie seems to be appealing. Much like capitalism which is covered by the veil of liberty, this political systemis covered by simple yet effective ideas. The more it is given due recognition, the more problems arise—the problems in interpretation being a case in point as explored in the previousparagraphs. Wresting control from the Americans sent a signal that nobody except their own people could rule their country. The moral dilemma of whether to support or not to support arises here.

The Taliban seem to know what they're doing, at least that is how it is projected to the rest of the world. It would be better if they manage to inculcate the Sharia law with the evolving times instead of going back to the primitive ages. Although the picture seems bleak, ten years from now, the question to be put on the table is whether Afghanistan is in a better position today than it was twenty years ago? Is it better off as an independent state (in both writings and action) instead of aligning itself with one super power? It is too early to speculate now. The Taliban were paraded in the media as fanatic Muslims out to destroy every other non-Muslim—a tradition ever since its inception—and which has seeped deeply into our minds. That does not go on to say that the author supports the Taliban either.

Adopting a moderate view, a rational ground wherein both sides are heard is the solution to this never-ending saga. There are many perpetrators, oppressors and victims in this story. The oppressors today may have been victims yesterday and vice versa. After all, one man's revolution is another man's terrorism.

References

Papers

1. James Ryan. Revolution is War: The Development of the Thought of V. I. Lenin on Violence, 1899–1907. The Slavonic and East European Review, 89(2), 248–273. https://doi.org/10.5699/slaveasteurorev2.89.2.0248

2. Bahry, D., and Silver, B. D. Intimidation and the Symbolic Uses of Terror in the USSR. The American Political Science Review, 81(4), 1066–1098. https://doi.org/10.2307/1962579

3. Rustam Singh. Violence in the Leninist Revolution. Economic and Political Weekly, 25(52), 2843–2856. http://www.jstor.org/stable/4397157

4. Chaliand, G. The History of Terrorism: From Antiquity to ISIS. Berkeley: University of California Press. https://wikileaks.org/gifiles/attach/177/177597_History%20of%20Ter.pdf

Documents/Archives

1. When and Why the Decision to Send Troops Was Made National Security Archive, nsarchive.gwu.edu/document/18117-document-7-when-and-why-decision-send.

2. THE KGB IN AFGHANISTAN: DEFECTOR'S DOCUMENTS SHED NEW LIGHT ON SOVIET WAR. Wilson Center, www.wilsoncenter.org/article/the-kgb-afghanistan-defectors-documents-shed-new-light-soviet-war.

3. The Economic Impact of Soviet Involvement in Afghanistan| National Security Archive, https://nsarchive2.gwu.edu/NSAEBB/NSAEBB57/us4.pdf

4. irp.fas.org/world/russia/kgb/su0523.htm.

5. Marxism on Terrorism - Socialist Worker. (2004, April 6). Socialist Worker. https://socialistworker.co.uk/socialist-review-archive/marxism-terrorism/ 6. Trotsky, L. (n.d.). Leon Trotsky: Why Marxists Oppose Individual Terrorism . Leon Trotsky: Why Marxists Oppose Individual Terrorism https://www.marxists.org/archive/trotsky /1911/11/tia09.htm

Websites

1. Massoud, M. F. Muslim women are using Sharia to push for gender equality. The Conversation. http://theconversation.com/muslim-women-are-using-sharia-to-push-for-gender-equality 158371

2. India, the Taliban, and the Country In Between. India, the Taliban, and the Country in Between – the Diplomat. https://thediplomat.com/2022/10/india-the-taliban-and-the-country-in-between

3. 3. What is Islamic economics. islamic-banking.com. (n.d.). What IsIslamic Economics | islamic-banking.com. https://www.islamic-banking.com/explore/islamic-economic-thought/what-islamic-economics#Shari'ah%20Fundamentals%20 of%20an%20Islamic%20Economic%20Order 4. The Taliban, explained. Vox. https://www.vox.com/videos/2021/11/11/22776772/taliban-afghanistan-mujahideen-history-takeover

5. Who are the Taliban? (n.d.). BBC News. https://www.bbc.com/news/world-south-asia-11451718

6. How American meddling shaped life in Afghanistan. Vox. https://www.vox.com/world/22634008/us-troops-afghanistan-cold-war-bush-bin-laden

7. Lockwood, N. How the Soviet Union Transformed Terrorism. How The Soviet Union Transformed Terrorism - the Atlantic. https://www.theatlantic.com/international/archive/2011/12/how-the-soviet-union-transfor med-terrorism/250433/

8. United States and state-sponsored terrorism - Wikipedia. United States and State-sponsored Terrorism - Wikipedia. https://en.wikipedia.org/wiki/United_States_and_state-sponsored_terrorism

9. A Historical Timeline of Afghanistan. PBS NewsHour. https://www.pbs.org/newshour/politics/asia-jan-june11-timeline-afghanistan

10. The Fenians: An Overview – The Irish Story. The Fenians: An Overview – the Irish Story. https://www.theirishstory.com/2017/03/07/the-fenians-an-overview/#.Y2dYCHZBy5c

11. Times have changed: Pictures of Afghan women before Taliban rule go viral. (n.d.). WION. https://www.wionews.com/photos/times-have-changed-pictures-of-afghan-women-before -taliban-rule-go-viral-406508

RESEARCH PAPER PROGRAMME

RPP is the flagship research project of the Vishleshan vertical initiated each academic year to provide targeted and quality support to undergraduates interested in writing research papers. Teams are guided through workshops conducted by alumni and provided mentorship by eminent faculty in their journey towards a successful undergraduate paper.

ANALYSIS OF THE ADAPTIVE USE OF CRYPTOCURRENCY IN INDIA

By Dhwani Kumar, Khushi Shekhar, Kunjal Agrawal

Abstract

This paper analyzes the adaptive use of Cryptocurrency in India. We see India as an emerging market in the space of Cryptocurrency, especially taking into consideration India's population of youth. Using secondary data, this study discusses the adoption of cryptocurrencies in India in the context of government and central bank policies/restrictions and analyzes the usage patterns to determine possible divides on age and gender. Further, we aim to analyze what factors could limit India's adoption of Cryptocurrency in the future. We also look at the primary data for a case study of female youth in New Delhi to analyze their perception and use of cryptocurrencies in India, looking at the percentage of people investing in cryptocurrency, their opinion of this emerging market, and other data to contextualize the discussion in the landscape of an urban economy in India.

1. Introduction

Over the past few years, cryptocurrency has emerged as a recurring topic of discussion in popular culture and households alike. This infatuation with cryptocurrency can also be attributed to the very circumstances in which it was created. The first cryptocurrency, Bitcoin, came into existence in 2008 as an antithesis to the traditional banking system, in the backdrop of the financial recession of 2007 which significantly reduced the public's trust in physical money.

These new-age currencies have come to comprise a good part of the global market. The global cryptocurrency market size was valued at $1.49 billion in 2020 and is projected to reach $4.94 billion by 2030. With most countries like the US, Vietnam, Philippines accepting and engaging with cryptocurrencies at an increasing rate, the digital assets market has been growing at a fast pace.

Some developing countries like El Salvador and Central African Republic have already legalized the use of cryptocurrency as their legal tender and recently, even the Costa Rican government allowed the use of cryptocurrency to legally pay employees.

Considering India's emerging status as a world leader, especially when considered in the context of emerging markets in South Asia, it is important to not only analyze the status of cryptocurrency in India but also see what the future holds for it.

2. Literature Review

2.1 Youth's Perception

One interesting trend about cryptocurrency is how even though a great number of traders believe themselves to have a low level of knowledge of cryptocurrency, and are uncertain about cryptocurrency as the future of finance, they are willing to invest in this new-age currency (Sabarwal, 2022). Enthusiasm regarding cryptocurrency is seen the most amongst youth aged 18-34 as compared to any other age group (Paxful, 2021). The enthusiasm around cryptocurrency amongst youth can be attributed to the fact that they grew up around technology, so they have a greater level of comfort with it. They believe in technology way more than they do in traditional financial methods, unlike the older generations (Gilbert, 2022). Apart from how easy and hassle-free the new age currencies are to invest in, social media and pop culture are the most influential factors to bring in a greater adaptation of cryptocurrency among the youth (Gupta et al., 2021). Cryptocurrency investment patterns are heavily influenced by what is trending on social media (*How Pop Culture and social media Manipulate the Meme Coin Market*, 2021). It can range from what celebrities, businessmen, and politicians have to say about crypto to vigorous crypto communities across different platforms. According to Gilbert (2022), those within the age range of 18-34 years old, are 17% more likely to base their investment decisions based on information gathered from social media.

2.2 Cryptocurrency and Society

Supporters of Cryptocurrency have for a long time boasted of how Cryptocurrency is a level playing field for everyone with no barriers to entry. In reality, Cryptocurrency finds itself in the conjunction of two sectors—STEM and Finance—areas in which women and individuals from racial and class minorities have been historically underrepresented (Cryptocurrency Investing has a Big Gender Problem, 2021). Even though research shows that cryptocurrency investment by women has grown over time, their participation in the sector has remained very low. Even to the extent that women are holders or users of cryptocurrencies, they are likely to hold very little of the available wealth (Henshaw, 2022).

Another quality in favor of Cryptocurrency's inclusivity is that anyone with Internet access can participate in Cryptocurrency. However other factors need to be taken into consideration while examining Crypto access using the internet such as the quality of the Internet, its regulation, and other environmental factors like electricity and access to computer hardware that might be limiting. Even if someone has quality Internet access, understanding how cryptocurrencies work to use them successfully requires fluency in computer science language (Will Cryptocurrency Further Equity or Undermine it? It's Complicated, 2022).

3. Methodology

This paper is an analytical study aided by secondary data collected primarily from sources such as 'Chainalysis', Annual Geography of Cryptocurrency Report for 2022, and Finder Cryptocurrency Adoption Index, November 2022. We will also be using other relevant journals and articles on the subject to identify trends and limitations in India. Further, the paper includes a case study on the female youth of New Delhi, conducted through a structured questionnaire circulated via Google Forms containing a mix of multiple-choice, rating scale, and open-ended questions to get an appropriate understanding of the subject's mentality and attitude towards cryptocurrency. The questionnaire was then distributed to university-level students. There were no restrictions placed on the income or background of the respondents. The answers were then analyzed primarily using descriptive statistics and exploratory analysis. The final sample size used for analysis was 106 respondents.

However, it is important to note that the study does have certain limitations. Our respondents would most probably be restricted to middle-class income level individuals, preventing it from making a holistic study.

4. Government Regulations

India's stance on cryptocurrency has evolved drastically over the past few years. In 2013, the Reserve Bank of India (RBI) issued a circular, warning the public against the use of Virtual Currencies (VCs), and cautioning them about the potential financial, operational, and security risks.

However, as cryptocurrency trade continued to grow, in 2017, RBI effectively placed a ban on cryptocurrency when it announced that virtual currency was not legal tender and released a circular prohibiting commercial and cooperative banks and other regulated entities from providing services to all entities dealing with cryptocurrency. Due to this, cryptocurrency prices fell, exchanges froze and withdrawals stopped immediately.

Later in March 2020, there was a significant development when the Supreme Court of India ruled to overturn RBI's ban as it considered it to be a violation of the fundamental rights of the citizens, therefore effectively legalizing its exchange.

On February 01, 2022, during the Union Budget speech, the Indian government for the first time, appropriately acknowledged cryptocurrencies in India by recognizing them as Virtual Digital Assets (VDAs) and provided an elaborate tax regime specifically targeted at these VDAs. This includes a 30% income tax on the earnings from the transfer of digital assets. Further, a 1% deduction of tax deducted at source (TDS) was also implemented on the buyer's payment if it crosses the threshold limit. The government also proposed the creation of a Digital Currency Regulatory Authority (DCRA) to oversee the use of cryptocurrency in India.

However, it is also important to note, that as of the writing of this paper, the government has made no specific references or mentions of cryptocurrencies or virtual assets while presenting the Union Budget for 2023.

5. Pre-COVID-19

Cryptocurrencies experienced significant growth in 2019 as more and more investors left the stock market to take advantage of the crypto frenzy. According to CoinMarketCap, the total market capitalization of cryptocurrencies was over $130 billion in January 2019. This broke all records and the increased popularity of cryptocurrencies caused the market to fall just short of the $200 billion milestone.

The cost of a Bitcoin has more than tripled in the final three months of 2017. This has caused the popularity of the term "Bitcoin" to suddenly rise, particularly in India. When bitcoin's price reached a record high of around $20,000 in December 2017, investors in India flocked to buy cryptocurrency. 2018 was a pivotal year for the bitcoin ecosystem in India. Investors and dealers saw it all, from a central bank order banning banks from transacting in cryptocurrency to the biggest exchange in the nation, Zebpay, closing its operations. Over the year, bitcoin prices dropped by more than 80%.

6. Post COVID-19

The onslaught of the COVID-19 pandemic in 2020 witnessed a sharp rise in cryptocurrency investment in India despite the increase in domestic economic issues and nationwide coronavirus related lockdown.

This was a period where people, concerned about their futures and its possible impact on savings, were looking for a viable alternative to the traditional centralized investing systems because they were worried that it may too fall victim to the uncertainties surrounding the pandemic.

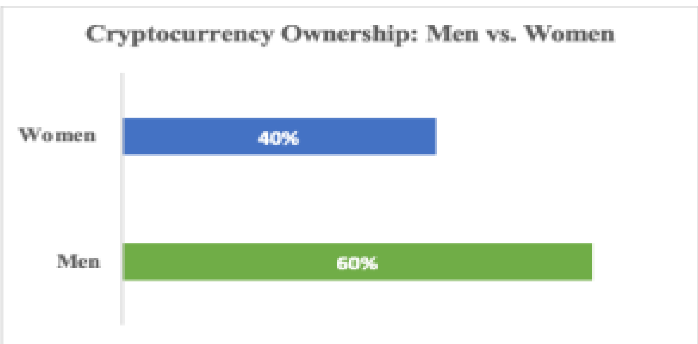
Further, the shift to contactless payment mechanisms during the pandemic made people more inclined to use and experiment with digital payment modes and cryptocurrency played an important role in enabling Indian consumers to engage in cross-border trade more seamlessly. In a context of a country like India where essential banking infrastructure is still not accessible to large swathes of the population, people started experimenting with cryptocurrency as a temporary store of money that is open 24/7 and its ease of use accompanied by high volatility presents several opportunities for the less privileged to build wealth.

6.2 Current Standing

According to data by blockchain analysis firm Chainalysis, India currently has the highest crypto-activity worth approximately 172 billion USD in 2022 alone. This puts it ahead of some developed countries including the United States of America as well as the United Kingdom.

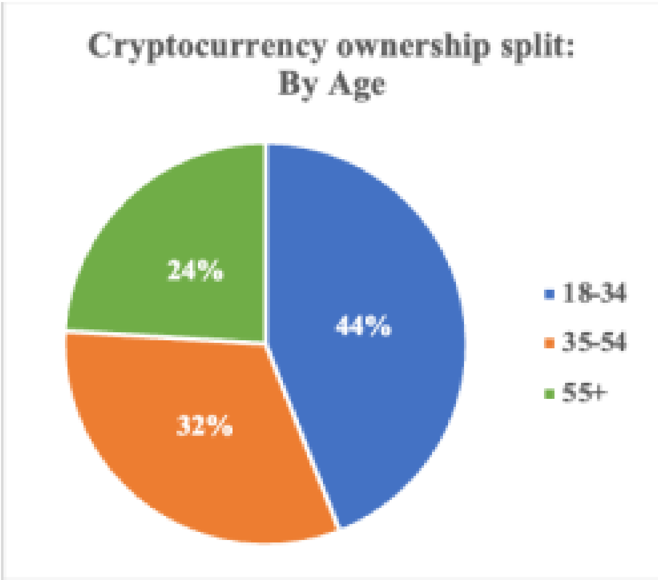
According to further research by Finder, a data-collecting platform, India ranks 1st out of 26 countries in its Cryptocurrency Adoption Index for 2022. It puts India’s ownership rate at 29% which is much higher than the global average of 15%.

6.2.1 Gender Analysis



Further, men who constitute 60% of all cryptocurrency owners in India are more likely to own digital assets compared to women who comprise only 40% of the crypto-owning population. This wide gender gap can be attributed to multiple socio-economic barriers that limit women's access to cryptocurrency including lack of financial literacy, limited access to independent decision-making in the household as well as lack of access to their own financial assets which are generally controlled by male members in the family.

6.2.2 Age Analysis



While analyzing the crypto-owning population on the basis of age trends, it is apparent that those aged 18-34 in India lead the way in terms of cryptocurrency ownership by accounting for 44% of total ownership. Those aged 55+ are least likely to own cryptocurrency and comprise only 24%.

This is a particularly interesting trend considering that those aged between 18-34 are less likely to have independent control over their financial resources, relative to other age groups, but yet account for the largest ownership.

This can be attributed to the following factors:

1. Technology Fluency: Those aged between 18-34 have been exposed to technology from an early age, therefore, making them more likely to trust in cryptocurrency and the blockchain technology that supports it. They are more likely to adapt easily to the new phenomenon compared to older generations who consider this shift to technology as a source of concern.

2. Distrust in Financial Institutions: The past few decades have been wrought with frequent inflations resulting in the lack of faith in centralized banking systems and the instability associated with them. While cryptocurrency is still a relatively new phenomenon, its decentralization offers them a respite from the traditional system.
3. Ease of Access to Crypto: The pandemic saw the rise of digital learning platforms which enabled the youth to access credible financial resources that provide genuine research to equip themselves with financial awareness and information.
4. High Returns: A key attraction for a lot of young investors to invest in cryptocurrency is the possibility of earning high profits by investing in small amounts. For example, WazirX allows investors to invest as little as 100-500 rupees in cryptocurrency. Small investments such as these enable them to slowly gain confidence in the phenomenon before taking bigger risks.
5. Social Media Factor: Social media has played an important role in making investing in cryptocurrency a popular trend due to which even the youth who do not actively invest feel the pressure to start investing themselves.

7. Limitations in India

Despite the growth and increasing popularity of cryptocurrencies among Indians, there are still a lot of challenges that the country must overcome in order to make cryptocurrencies a widely accepted form of payment.

7.1 Lack of Financial Literacy

The rate of financial literacy in India is as low as 27%. Financial literacy has a significant impact on the pace of investment and transaction in any currency, including cryptocurrency. Furthermore, because cryptocurrencies are a high-risk currency to invest in, a lack of financial expertise makes people even more skeptical of it.

7.2 Rural vs. Urban Divide

About 69% of Indians reside in rural areas, which lack modern infrastructure, good education, and technology. Around 16% of people live in poverty in India. Again, poverty makes it difficult for people to access resources. It results in a lack of technology accessibility, financial awareness, and education.

7.3 Lack of Technological Infrastructure

Jio's entry into the market in 2016 was a huge step forward for India's technical development and ensured that internet reached all regions of the country. However, just 24% of Indians own cell phones, and only 11% own computers or desktops. With 89% of Indians without desktop computers, it is obvious that there is a shortage of technological infrastructure in India that continues to limit the growth of cryptocurrency use.

7.4 Gender Divide

Only 24% of women have basic financial knowledge. This is a clear example of the gender disparity that India faces. Despite recent improvements in the status of women in India, there is still a significant gender gap in practically every area. Indian males are 1.5 times more likely to own cryptocurrency than Indian women according to the Finder report of the Cryptocurrency Adoption Index in India. In India, three out of every four women above the age of 15 are not financially independent.

7.5 Age Divide

Awareness regarding cryptocurrencies has primarily reached the country's youth, instead of the middle-aged population. Teenagers that support cryptocurrencies often lack the finances necessary to truly participate in the industry. While the younger generation is less risk-averse and more interested in social media trends, the elder generation, which has the financial means to invest in and utilize cryptocurrencies, is typically risk-averse, prefers stability, and does not care about internet trends.

7.6 Lack of Government Support

What is truly important to note is that the Indian government and the Reserve Bank of India (RBI) have not been very supportive of the penetration of new-age currencies, i.e. cryptocurrencies, in India. This is in addition to the limitations of the socioeconomic conditions of the country. The Indian government and RBI have been cautioning Indians about the risk that cryptocurrency holds, whereas government organizations in nations likethe USA regulate cryptocurrencies and develop policies to reduce the level of risk associated with this market for investors. Additionally, the recently passed Indian Union Budget for 2023-2024 overlooked cryptocurrencies. In India, there is no suitable regulatory framework for the cryptocurrency sector. This mistrust and RBI's lack of regulation of cryptocurrencies demotivate people from getting involved with cryptocurrency.

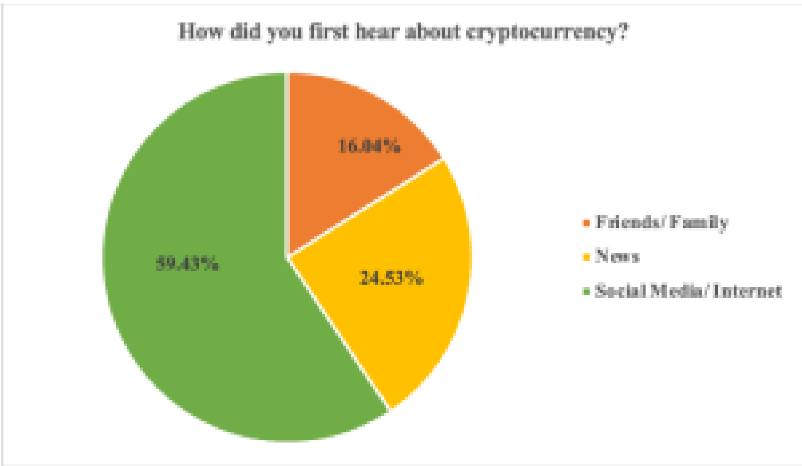
8. Case Study: Female Youth in New Delhi

The purpose of this case study is to examine the perspectives of women between the ages of 18 and 21 in New Delhi who have heard of cryptocurrencies but have never used them.

The primary data was gathered by generating an online questionnaire using Google Forms and recording the responses of 106 university-level students in order to better understand their cryptocurrency knowledge.

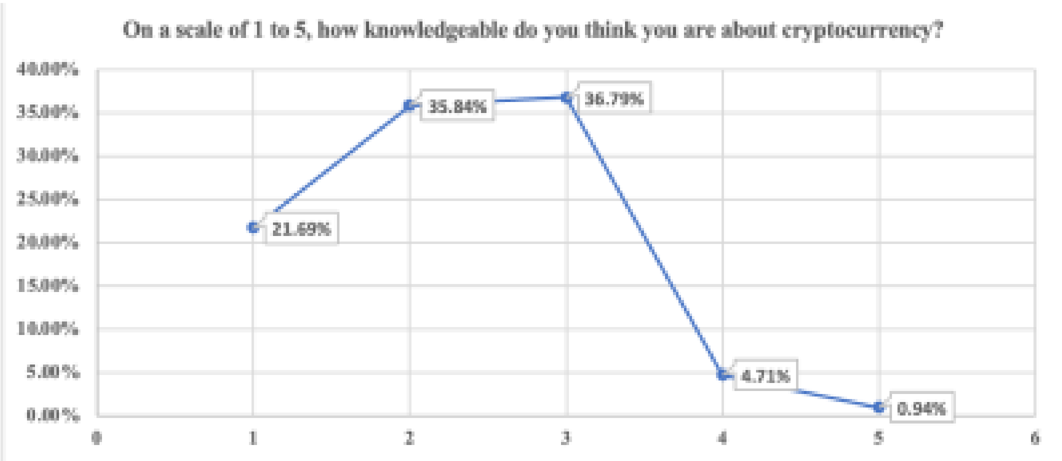
Results and Analysis

More than 50% of respondents said they had learned of cryptocurrencies on social media or the internet. Given that the target age group is the one that follows social media trends, this makes sense. Various influencers' and entrepreneurs' tweets and other memes that have gone viral in the previous two years have significantly increased the popularity of cryptocurrencies. Friends/family came in third place with 16%, and news sources at second with 24%.



(Figure 1)

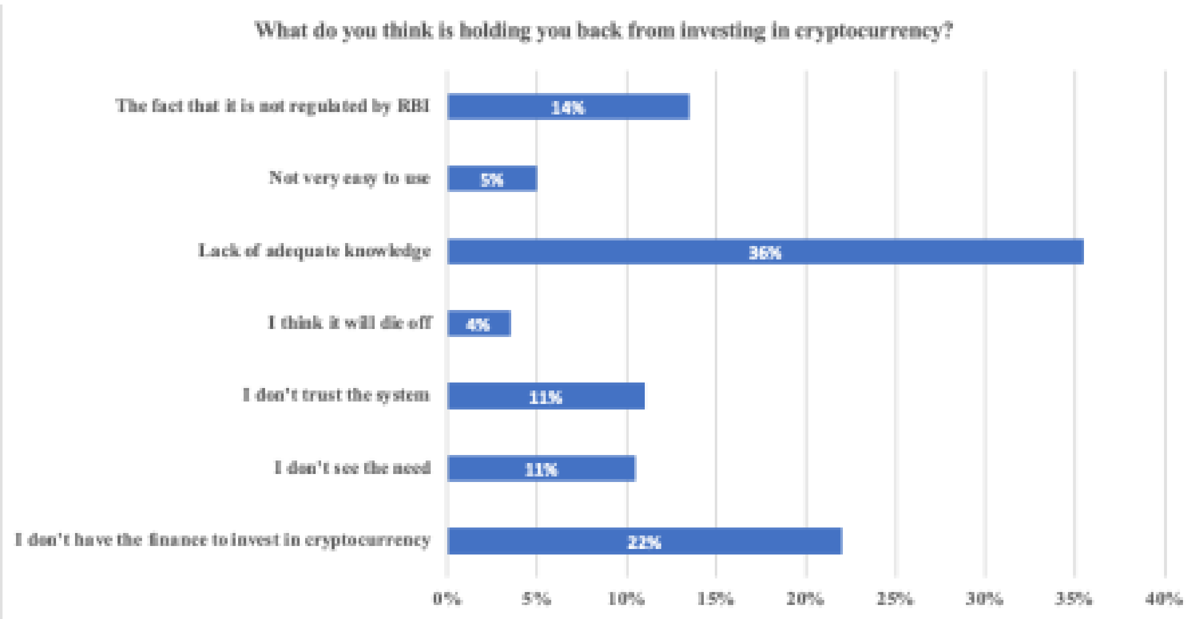
Along the same lines, when asked to rate their knowledge of cryptocurrencies, around 70% of respondents gave a score of 2 or 3, indicating that they don't have a high level of familiarity with the subject. This conclusion is consistent with our discussion of India's financial illiteracy. Only 0.94% of respondents have a thorough understanding of the subject, while 4.71% have a reasonable understanding.



(Figure 2)

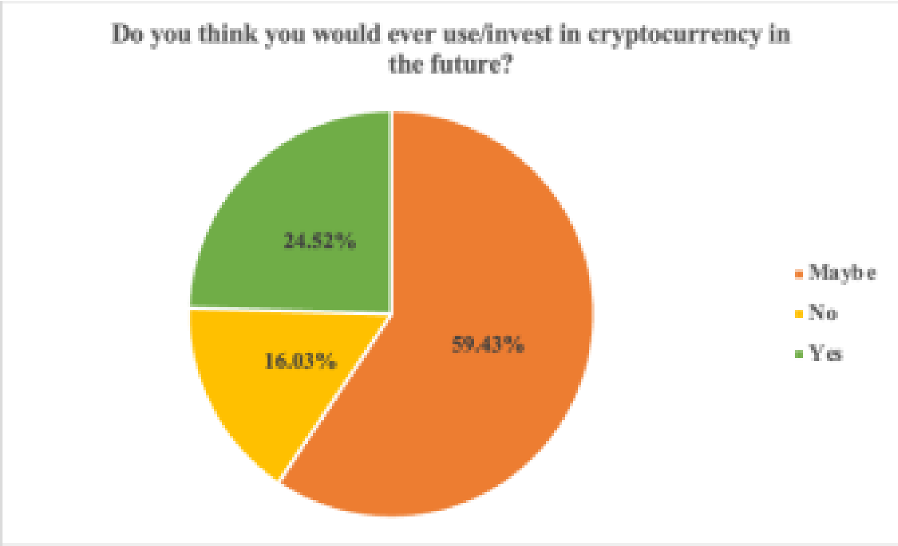
A quarter of the respondents (25%) are holding investments because they are skeptical of the decentralized cryptosystem or because of the fact that the RBI does not oversee it.

Due to the fact that our analysis was limited to university-level students in the age range of 18 to 21, it is evident that they currently do not have the funds to invest in assets and another 22% claim that this prevents them from doing so.



(Figure 3)

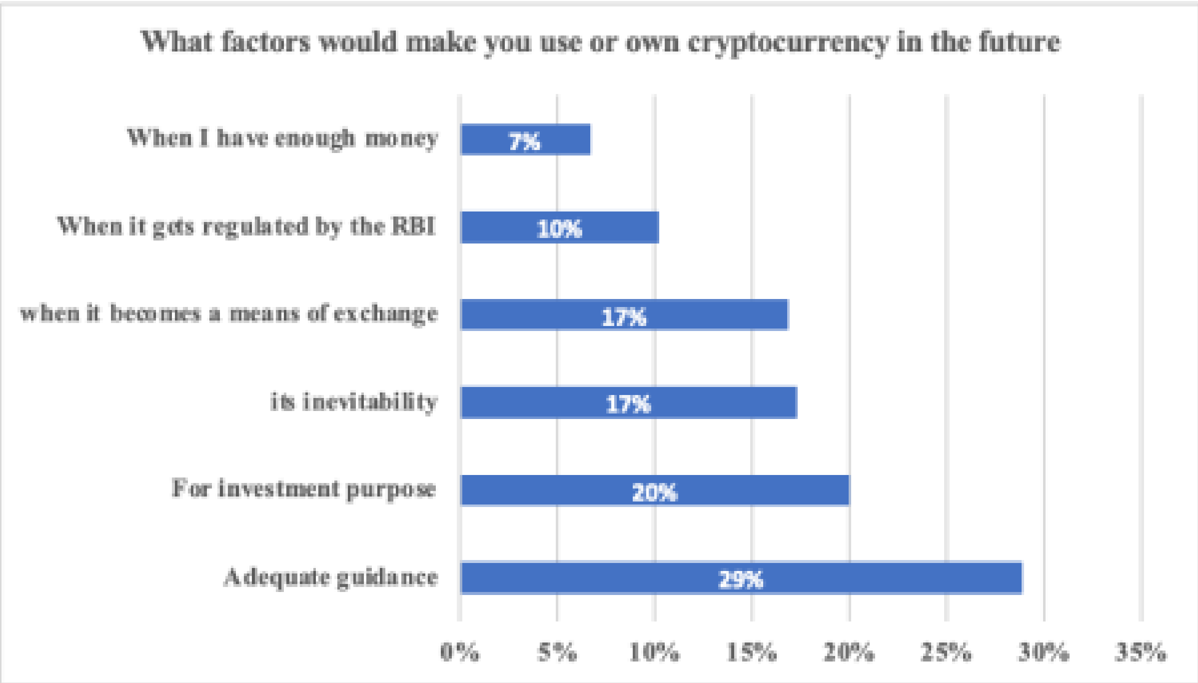
The fact that only 16% of respondents overall claimed they would never invest in cryptocurrencies shows how enthusiastic young people are about participating in the cryptocurrency environment.



(Figure 4)

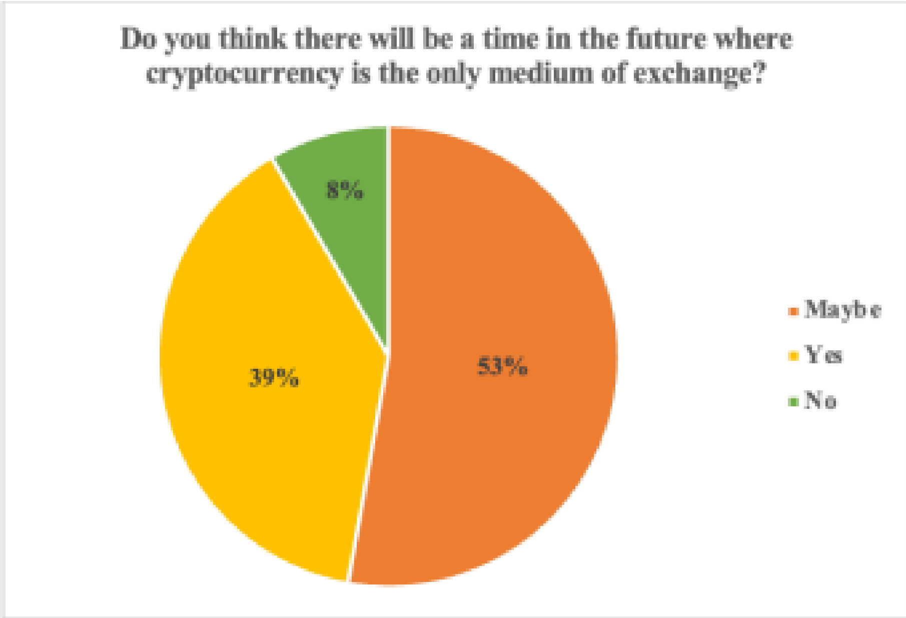
It is clear from Figure 3 that 36% of respondents lacked sufficient knowledge of the topic. About 29% of the 85% of respondents (figure 4) would be willing to invest in or use cryptocurrencies in the future if provided adequate guidance (figure 5).

For reasons including investment (20%), when it becomes a medium of exchange (17%), and its inevitable nature (17%), the respondents are open to using or owning cryptocurrencies in the future. 10% of people would only invest if it was RBI-regulated.

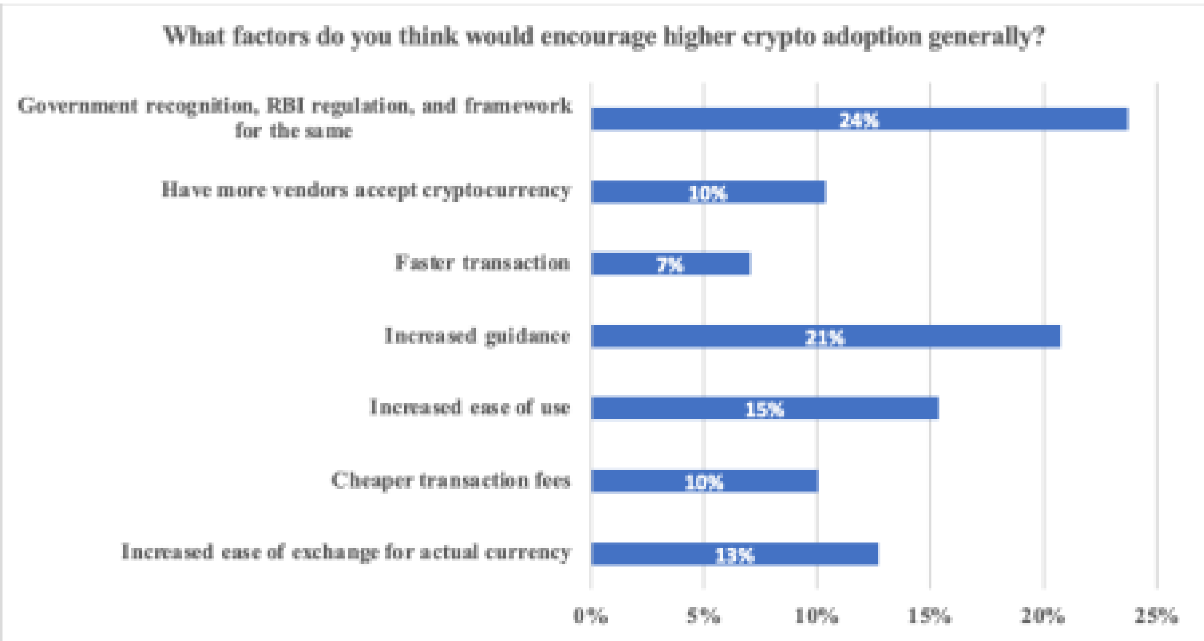


(Figure 5)

Only 8% of respondents oppose the idea, while 39% believe that cryptocurrency would eventually become the only method of payment. The majority continues to be uncertain about the same. The government's ongoing efforts to amend the laws governing cryptocurrency and the fact that the RBI won't be regulating it any time soon may be to blame for this.



(Figure 6)



(Figure 7)

The analysis' findings might be summed up as showing that, despite youth enthusiasm and familiarity with cryptocurrencies, there isn't much financial literacy, guidance, or other information available to them about cryptocurrencies that would enable them to utilize or invest in them, even if they had the money to do so. Additionally, they are afraid because cryptocurrency is not yet regulated in India. They understand that due to the lack of government support and legitimacy, investing in cryptocurrencies is still quite risky in India.

9. Conclusion

With India's continued expansion and development, the Indian market appears to be enthusiastic about the adoption of cryptocurrencies. This is a result of India's substantial youth population and the widespread use of cryptocurrencies among them. But it's unclear whether or not cryptocurrencies will truly become a payment method for everyday transactions. This is because the Indian government and RBI do not regulate or have faith in cryptocurrencies, and India faces socio-economic issues such as poverty, a lack of technological infrastructure, a lack of financial literacy and guidance, risk aversion, and gender inequality.

9.1 Path Ahead

The Indian Government's attitude towards cryptocurrency seems to be making a turn. Recently, India has taken cryptocurrency up as one of its key priorities for its G20 presidencyin 2023. As of the writing of this paper, India is scheduled to host a G20 summit to discuss the regulation of cryptocurrencies. While there are predictions that legislations governing crypto assets are to be implemented later this year, it's unclear when that will happen. However, it is certain that it would certainly help in ensuring that cryptocurrency is used and adopted by more people in India by reducing the risks and uncertainties associated with the same.

References

1. Aarti G, Pramod B, and Vineet K. Cryptocurrency Market Outlook – 2030. *Allied Market Research*, July 2021. https://www.alliedmarketresearch.com/crypto-currency-market

2. Prasad, Ajit. RBI cautions users of Virtual Currencies against Risks. *Reserve Bank of India*, December 24, 2013. https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=30247

3. Sinha, Saurav. Prohibition on dealing in Virtual Currencies (VCs). *Reserve Bank of India*, April 6, 2018. https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=11243

4. Crypto Market crash: A look at crypto volatility during pre-covid and now. *The Indian Express*, June 2022. https://indianexpress.com/article/technology/crypto/crypto-market-crash-a-look-at-crypto-volatility-during pre-covid-and-post-covid-era-7981508/

5. Anand, Nupur. Battered and bruised Indian crypto traders have all their hopes pinned on 2019 now. *Quartz*, December 27, 2018. https://qz.com/india/1506010/what-does-2019-hold-for-bitcoin-other-cryptocurrencies-in-india

6. PIB Delhi. RBI to issue Digital rupee starting from 2022-23. *Ministry of Finance*. February 1, 2022. https://pib.gov.in/PressReleasePage.aspx?PRID=1794140

7. Laycock, Richard. Finder Cryptocurrency Adoption Index. *Finder*. November 29, 2022. https://www.finder.com/in/finder-cryptocurrency-adoption-index

8. Parameshwar Praneet, Eshwara Ashok, and Jain Anuj. Trading habits among Indian youth during and post lockdown period: A study. 2022. https://media.neliti. com/ media/publications/422902-trading-habits-among-indian-youth-during-f3ede7f7.pdf

9. Verma, Mimansa. Cryptocurrencies are so popular in India that teenagers are investing their pocket money in them. *Scroll.in*. September 23, 2021. https://scroll.in/article/ 1005988/cryptocurrencies-are-so-popular-in-india-that-teenagers-are-investing-their pocket-money-in-them

10. In India, Financial Literacy Programs Are Lifting Families Out of Debt and Fueling New Prosperity. *Asian Development Bank*. March 8, 2022. https://www.adb.org/ results/india-financial-literacy-programs-lifting-families-out-debt-fueling-new-prosper ity#:~:text=Only%2027%25%20of%20Indian%20adults,the%20Reserve%20Bank%20 of%20India

11. Kapoor, Mahima. Rural Realities and Union Budget 2022-23. .*Impact and Policy Research Institute*. February 7, 2022. https://www.impriindia.com/event-report/rural-realities-budget-2022/#:~:text=In%20rural%20India%2C%20almost%2069,are%20 located%20in%20rural%20areas

12. Poverty to happiness: How India was rated by various global indices in 2022. *The Indian Express*. December 31, 2022. https://indianexpress.com/article/india/india-global-index-2022-8339997/

13. Kundu, Protiva. Indian education can't go online only 8% of homes with young members have computers with net links. *CBGA India.* May 5, 2020. https://www.cbgaindia.org/blog/indian-education-cant-go-online-8-homes-young-members-computer-net-link/#:~:text=While%2024%25%20Indians%20own%20a,has%20been%20haphazard%20and%20exclusionary

14. Vengurlekar, Maya. View: India cannot attain its goal of inclusive growth if the financial independence of rural women is ignored. *The Economics Times.* September 5, 2022. https://m.economictimes.com/news/economy/view-india-cannot-attain-its-goal-of-inclusive-growth-if-financial-independence-of-rural-women-is-ignored/articleshow/93997167.cms

15. Jose, Teena. Regulation Of Cryptocurrency Sector On Agenda For G20 Meeting, Says Nirmala Sitharaman. *Entrepreneur India.* February 8, 2023. https://www.entrepreneur.com/en-in/news-and-trends/regulation-of-cryptocurrency-sector-on-agenda-for-g20/444555

16. The 2022 Geography of Cryptocurrency Report. *Chainalysis.* 2022. https://go.chainalysis.com/rs/503-FAP-074/images/2022-Geography-of-Cryptocurrency.pdf

ARTICLES

GENDER, COLONIALISM, AND INDIA!

By Rachita Priyadarshini
Miranda House

Gender inequalities have a negative effect on growth, human development, and the quality of human resources. Gender inequality and limited economic growth thereby make poverty reduction a distant dream to achieve. Therefore, considering the issue of gender inequality and its various aspects are of great importance for economists (Turner, 1998**).** Most of usare aware of the benevolent deeds by Her Majesty, Queen Victoria—especially those of the abolition of Sati Pratha and the legalization of the remarriage of widows. Yet, considering the ruthless annexation of India by the British and draconian governance policies, it makes the most sense to talk about gender, development, and colonialism in a single breath. While we are familiar with the usual ledger of horrors that the British had unleashed in their colonies throughout the world; not to mention the detrimental ripple effects of the *Firangi Ra*j on gender inequality in India and South Asia in general (as a foreign dominion colonized most South Asian countries at a point of time) is of significant importance. Talking in simplified terms, colonialism, and imperialism, as concepts, involve the full-fledged dismantling of economic, social, and cultural constructs of the colony and declare de-facto and de jure superiority of the European knowledge systems.

To begin with, the colonial state was built as a power structure operated by men, based on continuing force. Be it the British armed forces, blue or white-collared office bearers, or even the "tradesmen" were predominantly men. Therefore, the sexual division of labor perpetuated gender inequality. Quite hegemonically, women in colonial India came to be defined relative to men, devoid of power, the right to own land, and the right to vote, and were even barred from participation in decision-making processes. This was in polar opposition to women's stature in the pre-colonial era. More so, rapes, honor killings, and physical and mental abuse of women were frequent occurrences during outright territorial expansionary wars waged by the British. It could be said that the British displayed double-doored interests in both emancipating women to marginal extents and upholding their subordination in all walks of life.

Although we cannot deny the prevalence of practices in pre-colonial India that outperformed themselves at suppressing women, British played a diabolical role by initiating the formalization of the caste system. It would be safe to say that caste, as is interpreted in India today, has its roots in British intervention during the colonial era. Caste, however, an Indian-born phenomenon that classified indigenous people according to their birth, became rather rigid and existing caste-based inequalities were reinforced under British reign. On a popular pretext of trying to understand the complex rituals and practices of thepeople in India, they successfully moulded public opinion regarding the system. What made the 1901 caste-based census by Herbert Risley pivotal in determining the gender discourse in the country is that every caste had its subtle ways of subjugating women. For instance, it was the beginning of the later Vedic Age that witnessed a significant deterioration in the status of women. Gender role stereotypes and compulsory subjugation of women started budding as a social menace, thus constraining them within four walls of household chores and child-rearing responsibilities. They were also prohibited from the right to education and employment at paid jobs. *Smritis* and *Puranas* left no stone unturned to accord and uphold baseless forms of domination by men over women. Ancient practices of Sati, the *purdah* system, and polygamy provide staunch evidence of perpetuating gender inequity. Additionally, appropriate characterization of the caste system only spewed a pinch of salt onthe wounded cut. When people were more sensitized about their standing on the social ladder, it only motivated them to fight for a position in the perceived "upper rung" of society. It led to severe disparities between women belonging to different hierarchies within the caste system. This particular syndrome was evident from the clear distinction between the causes that women fought for, pressing for equality and upliftment of the status quo. Even within the upper caste, women were treated poorly, let alone lower castes, whose women were quite impoverished.

Moreover, colonial rule displayed negligible rather, zero enthusiasm towards conducting any sort of census survey that could shed light on various significant metrics concerning the plight of the population, or more strictly women. This brought to the foreground, their sheer apathy towards attempting to study the existing gender bias, let alone trying to improve it. In such a scenario, single-handed efforts were made by famous economists like Dadabhai Naoroji, Findlay Shiras, and Dr. VKRV Rao to understand the socio-economic dynamic of the country. For instance, data collected on levels of literacy in the country during British rule attests that the overall literacy rate in the country was around 16%, whereas female literacy rates hovered around an appalling 6.4%. On one hand, where a majority of Indians were skeptical about the implementation of western English education in the country, no legitimate action was taken to sensitize the Indian masses or press for greater female inclusion in educational institutions. Apart from education, other welfare indicators like health and wellness were at an all-time low. The scarcity of public health institutions resulted in maternal mortality rates peaking due to dearth of reproductive and post-reproductive healthcare and nutrition for women during the colonial reign.

British had a superimposing influence on certain family structures that existed in India since time immemorial. By popular example, the Khasi tribes of Meghalaya and the Nairs of Kerala in India were matrilineal and matriarchal families, in essence, women asserted authority on all household matters, and the devolution of the ancestral property was in the female line. But the advent of colonialism marked the onset of the growing popularity of nuclear and patriarchal families. Various matrilineal family structures started resembling those of western nuclear families where the male member was the sole source of authority.

Gender discrimination, necessarily but does not sufficiently imply cradling a divide between gender binaries. The idea extends to the shameful degradation of gender non-binaries and banishing them from society. Thriving European ideologies can be solely held responsible for the popularization of gender binaries. Early travelers were baffled at the idea of egalitarianism between men and women. The fact that we can, with utmost certainty, claim that ‘mainstream’ pre-colonial India accepted so much more gender fluidity and so less discrimination based on gender, is why we should resent the colonial impact on gender relations in India. For instance, the notion of heteronormativity manifested itself in the admonishment of Hijras, Khwajasaras, and Aravanis by the passage of the Criminal Tribes Act in 1871.

There is no denying that gender inequality was an entrenched characteristic of Indian society in pre-colonial times as well. But a twenty-decade-long suzerainty that was supposed to be “western, modern, and liberal” caused more harm than good to women. They had legalized certain revolutionary reforms during their rule that aimed at the emancipation of women. But unfortunately, those failed to mask the herald of a horrific tale of discrimination and exploitation of women. Gender inequality and stagnation of overall development hence continued to move around in vicious circles since then. Thus, in order to unravel the journey towards economic growth, it is necessary to examine the roots of gender inequality (British colonialism being one of them) which in itself is multifaceted, encompassing economic, social, political, and social inequality. Although India’s current Gender Inequality Index doesn’t paint an optimistic picture, balanced and farsighted redressals that serve each basisof inequality can carve out a practical path of development in the future.

References

1. All Answers Ltd. –Impact of Gender Inequality on Economic Growth: High HDI Countries, July 27, 2022. https://ukdiss.com/examples/gender-inequality-economic-growth-0299.php.

2. Tilley, Lisa. Coloniality of Gender. GLOBAL SOCIAL THEORY, February 23, 2016. https://globalsocialtheory.org/topics/coloniality-of-gender/.

3. India's Forgotten Girls: Gender Inequality in India. –History, n.d. https://rgssisujoshuarperiod4cece.weebly.com/history.html.

4. Tnn (T.). British perfected caste system in India. January 5, 20017. https://m.timesofindia.com/city/ahmedabad/british-perfected-caste-system-in-india/articleshow/56341540.cms

5. "Colonialism and Imperialism." Encyclopedia of Clothing and Fashion. Encyclopedia.com. (November 29, 2022). https://www.encyclopedia.com/fashion/encyclopedias-almanacs-transcripts-and-maps/colonialism-and-imperialism

6. Buckley, Alex. Gender Oppression, Inequality and Gender Roles In India and Southwestern United States: How British Colonial Rule and American Internal Colonialism Perpetuated Gender Roles and Oppression, April 30, 2015. https://people.smu.edu/knw2399/2015/04/30/gender-oppression-inequality-and-gender-roles- in-india-and-southwestern-united-states-how-british-colonial-rule-and-american-internal-colonialism-perpetuated-gender-roles-and-oppression/.

7. Kumar, Vimal. Matrilineal Societies of India. Observer Voice, August 11, 2022. https://observervoice.com/matrilineal-societies-of-india-442/.

8. Rai, Diva. Criminalization of Transgender People in Colonial India: Criminal Tribes Act. iPleaders, December 9, 2021. https://blog.ipleaders.in/criminalization-of-transgender-people-in-colonial-india-criminal tribes-act/.

9. Johari, Aarefa. Hijra, Kothi, Aravani: A Quick Guide to Transgender Terminology. Scroll.in, April 17, 2014. https://amp.scroll.in/article/662023/hijra-kothi-aravani-a-quick-guide-to-transgender-terminology.

10. Irfan, Lubna. Stories of Khwajasaras Should Be an Important Part of the Study of Mughal History. The Wire, n.d. https://thewire.in/history/storied-of-khwajasaras-should-be-an-important-part-of-the-study-of-mughal-history.

11. Wikipedia contributors. Hijra (South Asia). Wikipedia, December 17, 2022. https://en.wikipedia.org/wiki/Hijra (South Asia).

12. Human Development and Gender Inequality GSDRC. GSDRC - Governance, Social Development, Conflict and Humanitarian Knowledge Services, October 28, 2015. https://gsdrc.org/topic-guides/social-development-and-human-development/human-development-and-gender-inequality/.

CRYPTO-NOMICS: AN ECONOMIC EVALUATION OF BITCOIN

By Manan Arora
Ramanujan College

INTRODUCTION

In the year 2008, a computer programmer or a clique of programmers under the name Santoshi Nakamoto invented a platform that facilitates digital transfers of representations of value (Santoshi Nakamoto, 2009). This system was called Bitcoin and it was the first ever cryptocurrency. A cryptocurrency is digital money in an electronic payment system in which payments are validated by a decentralized network of system users and cryptographic protocols instead of a centralized intermediary (such as a bank).

Cryptocurrency's acceptance is increasing day by day and there is hardly anyone who has not heard of it these days. People are so intrigued and fascinated by the charisma of cryptocurrency that they are going crazy for it. Day on day, cryptocurrency is attracting new investors from around the world. The only hindrance is in the fact that there is the lack of clear understanding of the complexities of the blockchain and crypto market and how these currencies interact with physical commodities in real time. It creates a little bit of confusionin some minds. Research is crafted in such a way that cryptoeconomics not only clears doubtsbut also gives an improved understanding of concepts. With the rapid digitalization of the globe and rapid changes in the technology, Moore's Law is predicted to dash to the groundby 2020. Everything is becoming progressively more digital. Efforts are being made to make this digitalization more secure and swift.

The cryptocurrency has seen a shocking trend from a mere value of $0 in 2011 to a value of $19,479 in 2023 providing a CAGR of roughly 169.8% on its investment. But besides the technical definition a lot of people are still perplexed as to what it means when I invest in cryptocurrency and how the value addition process goes on.

After the popularity and the rise of its worth in a very few years, it is inevitable to study the Crypto economics. Everyone seems to be hungry for block chain knowledge. It is rightly said that blockchain has revolutionized the era of technology. Cryptocurrencies, other than cryptocurrency, have seen this popularity which is worth an appraisal as well. So the question arises what is the economics behind cryptocurrency? How do some people make profits while some make losses?

Medium of Exchange

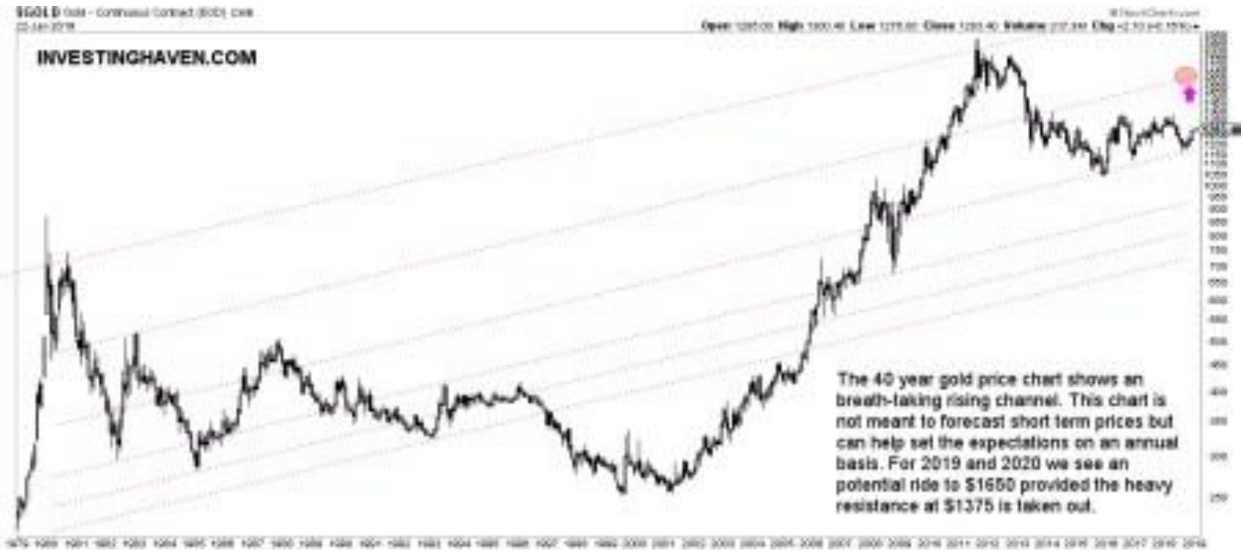
The use of cryptocurrency has expanded over the years. On 15th November, 2012, WordPress began accepting bitcoins for website upgrades. In December 2014, Microsoft began accepting bitcoin payments games and videos on X Box game consoles, apps, Microsoft softwares and other services. El Salvador on 7th September 2021 adopted Bitcoin as legal tender. Specifically mentioned in the Indian circuit, in 2014 itself, a pizza shop called Kolonial in Mumbai became the first restaurant to accept Bitcoin for food. India has the highest number of cryptocurrency holders in the world at 10.07 crore, according to broker discovery and comparison platform Broker Chooser. With 2.74 crore crypto-owners US came at the second position followed by Russia (1.74 crore) and Nigeria (1.30 crore) (News 18, 2021). Bitcoin prevents currency censorship by the virtue of its decentralization and blockchain protection technology has found its market in almost all the countries of the world, however consumption based on bitcoin is found more in the politically unstable regimes and therefore we can conclude the fact that the acceptance of bitcoin as a currency still seems a far cry.

A Store of Value in the Future

Major supporters of cryptocurrencies back its value as a store of value, just like precious metals which have been conclusive proofs of store of over a time period of about 2,000 years. Some major characteristics shared by cryptocurrencies and bitcoins involve limited supply with the former being restricted to 21 million coins and latter at 53,000 tonnes.

As of January 2022, there are approximately 18.9 million bitcoins issued and about 2.1 million bitcoins are yet to be released.

Each is a safe way of storing money out of traditional banking systems and models, they both have purely speculative investments, although some experts may argue the utility of gold in traditional industries such as jewelry, but both of them derive their value out from economic reasons of store of value and a future expectation of price rise. Empirically, we observe that both have a long term increase in price, however gold is a relatively safer investment since it has proved itself over the span of more than 70 years. The prices of gold have been increasing in the long run from $422 in April, 2015 to $1974.90 in April, 2022, proving it a store of value in the global economy.



A similar trend can be seen in the price of bitcoin which has increased from $5 in January 2012 to $46,154 in April 2022. Therefore, bitcoin has to prove itself further in order to establish itself as a store of value in the future as strongly as gold and thus it remains to be observed over the years.

Cryptocurrency: A Zero Sum Game

Many economists hold a different opinion of bitcoin as a currency. Šurda (2014) has an opinion that with a proper blockchain network and with the development of trust between economic participants, bitcoin has safely ensured smooth and efficient running of the system although it itself doesn't have an intrinsic value.

Yermack (2013) has a similar opinion about cryptocurrency arguing that it is identified as a commodity and has a speculative investment opportunity.

In our research, we identify that cryptocurrency is based on the concept of zero sum game or a negative sum game. A zero sum game is defined as a game where the sum of net gains and losses is 0. Therefore, if two people invest in cryptocurrency, a new investor must be added.

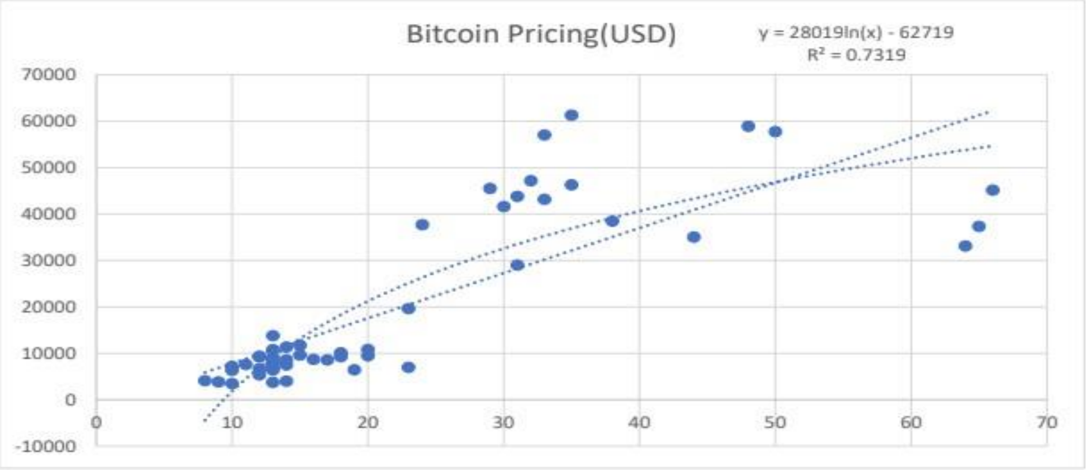
Crypto currency has no intrinsic value and is not supported by countries as legal tender (except in El Salvador). The gains from cryptocurrency for one person correspond to losses for other market participants. With increasing transaction costs on various cryptocurrency trading platforms and other expenses associated with its purchase, it makes it a negative sum game.

Factors that determine the price of Cryptocurrency

Modern day crypto currencies are subject to a lot of volatility based on numerous factors involved. With a brief literature review from several categories we can divide these factors into 3 data categories, namely macro-economic and financial indicators, attractiveness and demand and supply.

Attractiveness drivers

Bitcoin emerged as a popular currency in the modern day with the era of internet, social media and network engines. Since bitcoin has a complex structure, there is a difficulty in understanding the working of bitcoin. Naturally a lot of search engines and the peculiar aspect works upon the relationship between number of searches and the demand of these coins (Polanski, 2015) has strongly argued that popularity is a very strong factor that indicates the Bitcoin price returns. The authors further stated that a 1% increase in the number of articles mentioning the term bitcoin generated an approximate return of 31 to 36 basis points on its price. For the analysis, we assume that bitcoin pricing is in USD as the dependent variable and Google trends (i.e., a database capturing how frequently a given search term is entered into Google's search engine relative to the site's total search volume over a given period of time) as the independent variable.



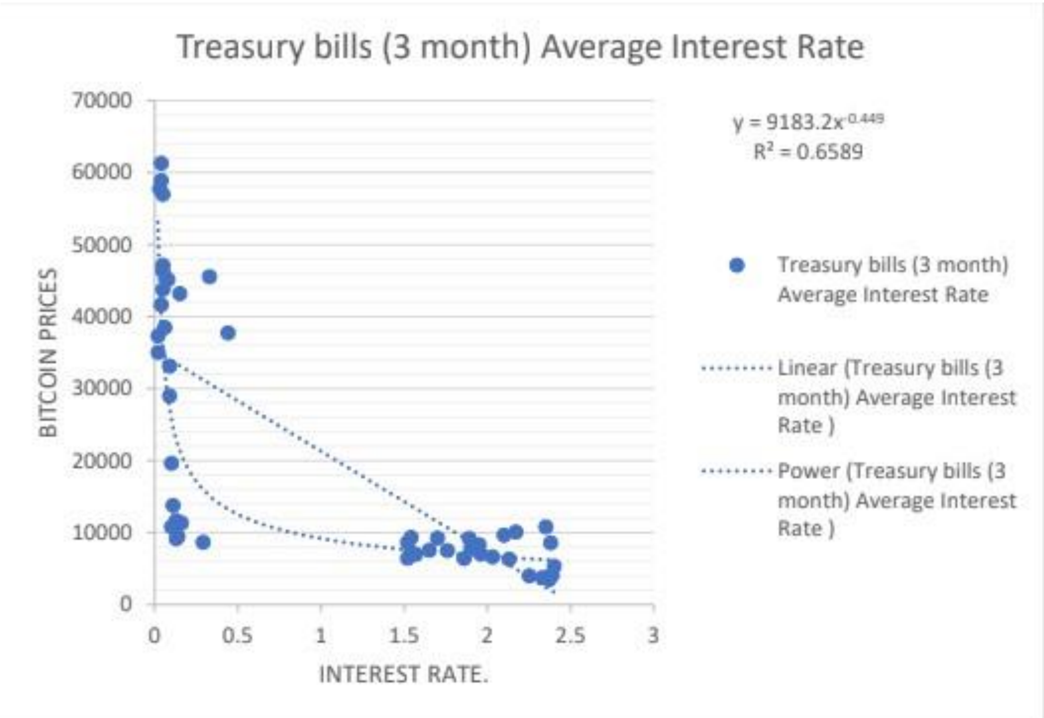
Regression Statistics	
Multiple R	0.85553
R Square	0.731931
Adjusted R Square	0.726346
Standard Error	9627.179
Observations	50

The above graph establishes a linear-log relationship between Google trends data and bitcoin prices over the 48 months between March 2018 and 2022. The R-square value comes out to be 73% which simply means that 73% of variation in Bitcoin pricing is explained by the log of google trends. This can be translated (since Google trends measures in index from 1 to 100) an increase of 1 point in log of Google trends index will increase the price of bitcoin by $28,019. In simple words, the popularity of bitcoin measured in the amount of Google searches, tweets and its popularity plays a major role in determining its price.

Macroeconomics Indicators

a) A negative relationship with interest rates on the treasury bills.

In our studies, we have also observed that there exists an inverse relationship between bitcoin prices and the average interest rate of US treasury bills. The R-squared value indicates that approximately 66% of the variation in bitcoin prices is explained by the US treasury bill (3 month) interest rate. This is standardized with our theory that when relatively safer asset classes offer a higher return just as the US treasury bill, it naturally reduces the price of cryptocurrencies, thus making it a lucrative option for the investors. However it may be noted that the interest rate on treasury bills is not the sole reason for drifting of prices of bitcoin but one of the factors along with Government bonds and other financial instruments.

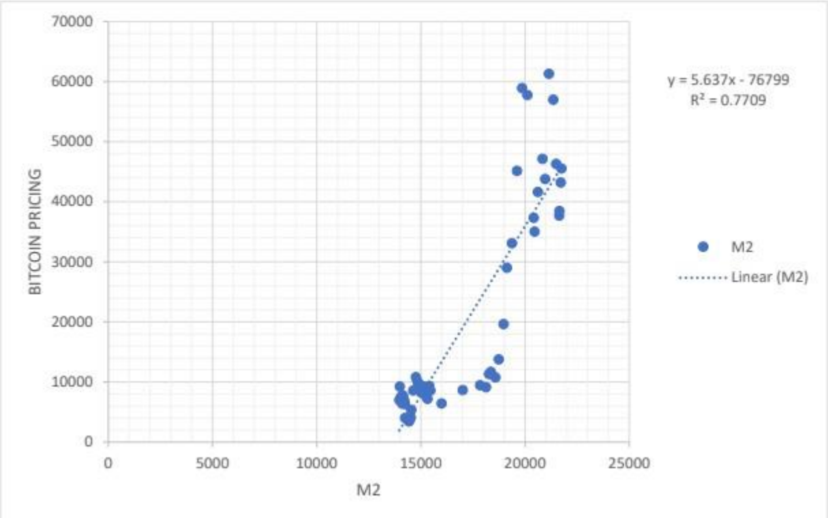


b) A positive relationship of bitcoin prices with the Money supply (M2):

A lot of economists argue that an increase in the price of cryptocurrency is relative to the increase in money supply by the central bank. When there is an increase in the money supply in the economy there is a reduction in the nominal interest rates which reduces yields from the securities and traditional investment options, therefore, people look for other lucrative opportunities to invest in, such as cryptocurrencies, NFTs, real estate, etc.

M2 consists of M1 plus (1) savings deposits (including money market deposit accounts); (2) small-denomination time deposits (time deposits in amounts of less than $100,000) less individual retirement account (IRA) and Keogh balances at depository institutions; and (3) balances in retail money market funds (MMFs) less IRA and Keogh balances at MMFs.

We take M2 as the independent variable and bitcoin prices (USD) as the dependent variable. The above graph establishes a linear relationship between money supply (M2) data and bitcoin prices over the 48 months from March 2018 to 2022. We estimate a linear regression with an R square value of roughly 77 % which indicates that roughly 77 % of the variation in Bitcoin prices is explained by the M2 component of the money supply in the US, proving our argument to be correct in this scenario.



Regression Statistics	
Multiple R	0.878008
R Square	0.770899
Adjusted R Square	0.766126
Standard Error	8899.981
Observations	50

Conclusion

In our observations, we continue to see bitcoin to be an emerging asset pertaining to its increased acceptance in the last decade and from its journey to a value of $0 since its launch to a price point of $16,529.40 USD to this day. Also from our observations we very positively saw that bitcoin can be treated as a store of value in the future similar to gold and other precious metals, however, bitcoin will have to prove itself in the coming 20 years to compete with gold which has a reputation and goodwill as a store of value 60 years after the war and has stayed strong despite having faced crises. However, we still have a skeptical view of cryptocurrencies being adopted as legal tender based on the fact that it has essentiallyno economic value and is a zero sum game ultimately running losses for a breadwinner and encouraging professional gambling.

However we have established some useful relationships, we observed there being a positive relationship between bitcoin pricing and Google trends, indicating a positive relationship between popularity and its increased price. Macroeconomic trends such as having a direct relationship with the money supply indicates decreasing interest rate making bitcoin investing a lucrative opportunity symbolizing the trust and reliability of bitcoin at the present juncture, also there exists an inverse relationship between bitcoin prices and the average interest rate of US treasury bills (3 month) indicating a reliable trust from the investors in the situation of a crisis in the traditional economy.

Therefore, we can safely conclude that although bitcoin may have a bright future based on the current base and market it has, it will need to find new and significant mediums of exchange in order to grow and flourish.

References

1. Šurda P, The Origin, Classification and Utility of Bitcoin (May 14, 2014). Available at SSRN: https://ssrn.com/abstract= 2436823
2. Yermack D (2013) Is Bitcoin a real currency? An economic appraisal.
3. Bouoiyour J,Selmi R (2015) What does bitcoin look like? Ann Econ Financial 16:449–492
4. Ciaian P, Miroslava R, Kancs D (2016a) Can bitcoin become a global currency? IseB 14:883–919

5. Andress, A. (2010). Cryptography and Encryption. Surviving Security. https://doi.org/ 10.1201/9780203501405.ch4

6. Narayanan, A., Bonneau, J., Felten, E., Miller, A., and Goldfeder, S. (2016). Chapter I - Introduction to Cryptography and Cryptocurrencies. Cryptocurrency and Cryptocurrency Technologies: A Comprehensive Introduction, 1–26. Retrieved from http://press.princeton.edu/titles/10908.html

7. Goldschmidt, C. (n.d.). Cryptocurrency Technology is Game Changer.

8. Szalachowski, P. (2018). Towards More Reliable Cryptocurrency Timestamps, 5–8. https://doi.org/10.1109/CVCBT.2018.00018

9. Berentsen, A., and Schär, F. (2018). A short introduction to the world of cryptocurrencies. Federal Reserve Bank of St. Louis Review, 100(1), 1–16. https://doi. org/10.20955/r.2018.1-16

10. Gupta, R. (2017). Journal of Internet Banking and Commerce Future of Cryptocurrencys A Study. Journal of Internet Banking and Commerce, 22 (3).

11. US (3 month) Treasury bill return dataset: US Treasury Government Website https:// fiscaldata.treasury.gov/datasets/average-interest-rates-treasurysecurities/average-interest-rates-on-u-s-treasury-securities

12. Money Supply database : Fred St louis Fed https://fred.stlouisfed.org/series/M2SL

13. Bitcoin price dataset–Yahoo Finance: https://finance.yahoo.com/quote/BTC USD/ history?period1=1636967447&period2=1668503447&interval=1mo&filter=hist ory&frequency=1mo&includeAdjustedClose=true

14. Dataset used uploaded (https://drive.google.com/file/d/187P3s8gko5RkrUYK87Bldqje WgvK_AEP/view?us p=sharing)

THE INVISIBLE HAND OF SOCIAL NORMS: HOW THEY SHAPE ECONOMIC CHOICES

By Ramansh Tiwari
Sri Guru Gobind Singh College of Commerce

“Societal norms can be powerful influences on our behaviour and decision-making. It’s important to be mindful of them and to think critically about whether they align with our values and goals."

- Michelle Obama

How free are we?

People all over the world enjoy the idea of total freedom and are outraged at the thought of being unfree. Freedom cannot be absolute; no one can be completely free. The world we live in today is governed by rules, regulations and laws which visibly influence the behaviours and actions of people.

Whereas there are some other factors whose influence is either more or the same as the visible ones but aren’t discussed that often as they are harder to accept and verbally talk about. These include the perceived informal, mostly unwritten rules that define acceptable and appropriate actions within a given group or community, commonly known as social norms.

It is difficult to determine exactly how free individuals are from social norms, as this can vary widely depending on the norms that are present in their society, as well as their values and beliefs. In this article, we will delve deeper into what social norms are, and their role in economic decision-making and explore some of the key ways in which these norms impact economic behaviour.

What are Social Norms?

Social norms are defined by the feature that they are not outcome-oriented. They are either unconditional or, if conditional, are not future-oriented. To be social, they must be shared by other people and should be judged by their approval and disapproval. They are also encouraged by the feelings of embarrassment, anxiety, and guilt that a person suffers at the prospect of violating them.

A person obeying a norm may also be pushed by negative emotions, like anger and indignation.

As defined by many, the feeling of a person enacting the norms of vengeance is referred to as the wildest, sweetest kind of drunkenness. Social norms have a grip on the mind because they can trigger strong emotions.

They are unwritten rules that govern the behaviour of individuals and groups in society and play a significant role in economic decision-making. These norms can influence the choices made by individuals and organisations in the market, shaping consumer behaviour, market outcomes, and economic development.

The invisible hand of social norms refers to the idea that individuals, in pursuit of their self-interest, can lead to the unintended consequence of benefiting society. In economics, the concept of the invisible hand was famously introduced by Adam Smith in his book "The Wealth of Nations," where he argued that the free market, guided by the invisible hand, is the most efficient and fair system for allocating resources.

Influence on Consumers

Social norms are major drivers of human behaviour and play a crucial part in the consumer decision-making process. One of the primary ways that social norms influence economic decision-making is by forming consumer behaviour.

Consumers are often influenced by the expectations and behaviours of their peers and may make purchasing decisions based on what they perceive to be the norm within their social group. If a particular brand becomes associated with a particular social group or lifestyle, this can influence the purchasing decisions of individuals who want to fit in with that group or aspire to that lifestyle. Similarly, if a particular product becomes associated with a particular cause or value, this can also influence consumer behaviour, as individuals may be more likely to purchase the product if it aligns with their values.

The famous example of Nike explains this case in a better way as Nike took a stand against the racial injustice and bigotry against Colin Kaepernick which influenced people in favour of the company and impacted its sales.

Although social norms can influence consumer decision-making, understanding how the specification of the norm determines its effect is complex. The norms can be specified in either a Descriptive or Injunctive way.

Injunctive norms, also known as moral norms, refer to moral values and societal standards about behaviour, these are silently understood precepts of expected behaviour, closely related to manners or otherwise unacceptable actions and behaviours that likewise remain undiscussed. Whereas Descriptive norms refer to the various consensual standards that describe how people act, feel, and think in a given situation. According to the definition above, Descriptive norms are shown to have a larger effect on the behaviour of people whereas Injunctive norms have a larger effect on the attitudes of the people.

The second most important factor in determining the amount of effect the norms have on people depends upon the concreteness with which the required behaviour and consequences are specified. Concrete information is generally more engaging and attractive than abstract information and could therefore be more persuasive. The norms may be more relevant and hence more influential when they come from people with whom the consumer can easily identify. Thus, it is established that norms highly influence the decision-making process of consumers.

Effect on Producers and Sellers

As consumers constitute one part of the economy, the producers and sellers make up the rest. Both producers and sellers play a crucial role in the economy by providing a means for people to exchange goods and services and by creating jobs and income for people. They also contribute to economic growth by increasing the supply of goods and services available to consumers. The social norms affect them as much as the consumers.

Social norms influence market outcomes by shaping the behaviour of producers and sellers. If there exists a notion against certain business practices such as price gouging during a natural disaster, producers and sellers may be less likely to engage in those practices to avoid social backlash. On the other hand, if a norm encourages certain business practices, such as fair labour practices or environmental sustainability, producers and sellers may be more likely to adopt these practices to appeal to socially conscious consumers.

In a more recent example, the famous company BournVita decided to reshape the design ofthe packaging of its products into the shape of toilet cleaners to raise awareness against the everlasting social norm of parents overdoing their job of meddling and constructing their children's careers. Was the reason behind it a profit-making scheme from them like the other companies usually do or something else is still unknown, but the one thing incurred from this is that all of the companies remain actively involved with the social norms.

These examples and more, help establish the fact that the norms affect the decision-making process of the major sectors of the economy as everyone wants to abide by the norms to fit in with the majority and maintain their image so that they remain relevant in the economy.

Some Significant Social Norms

- The gender-biased norms are still the most prevalent social norms that exist today which include the expectation of society about what types of work should be done by men and women. These expectations often affect how individuals choose their careers and contribute to the economy.
- The concept of "face-saving" in some East Asian cultures, such as China and Japan. In these cultures, it is important to maintain a sense of dignity and respect in social interactions and people may be more likely to make decisions that preserve their reputation and social standing.
- The concept of "collectivism" in some Latin American and African cultures. In these cultures, the group is often considered more important than the individual and people may be more likely to make decisions based on the needs and interests of the group rather than their interests.
- The concept of "individualism" in some Western cultures such as the United States and Canada. In these cultures, the individual is often considered more important than the group and people may be more likely to make decisions based on their interests and goals.
- The concept of "hierarchy" in some South Asian cultures such as India and Pakistan. In these cultures, there is often a strong emphasis on hierarchy and respect for authority, and people may be more likely to make decisions based on the expectations and desires of their superiors.

The Good and the Bad

In addition to influencing consumer behaviour and market outcomes, social norms can also promote economic development. In developing countries, social norms around education, entrepreneurship and innovation can influence the extent to which individuals and organisations can take advantage of economic opportunities. For example, if there is a strong social norm that values education, individuals may be more likely to invest in their education and the education of their children which can lead to increased economic productivity and development. Similarly, when entrepreneurship and innovation are encouraged in a society, individuals and organisations may be more likely to take risks and pursue new ideas which can lead to economic growth and development.

However, it is important to note that social norms can also have negative impacts on economic decision-making. For example, if there is a social norm that discourages certain behaviours or activities, this can create barriers to economic development. For instance, if there is a social norm that discourages women from participating in the labour force, this can limit the economic opportunities available to women and lead to economic inefficiency. Similarly, if there is a social norm that discourages individuals from starting their businesses, this can limit entrepreneurial activity and economic growth.

They also have a fair share of effect on individual and collective decision-making processes. For instance, social norms can influence how individuals process and weigh the costs and benefits of different options as well as how they perceive the potential consequences of their actions. For example, if there is a social norm that values honesty and integrity, individuals may be more likely to weigh the potential negative consequences of dishonest behaviour more heavily in their decision-making process. Similarly, if there is a social norm that values collaboration and cooperation, individuals may be more likely to consider the potentialbenefits of working together in their decision-making process.

Are Social Norms Rationalisations of Self-interest?

Norms are not necessarily rationalizations of self-interest. While it is true that individuals act in their self-interest, norms can also be motivated by a desire to promote the well-being of the group or society as a whole.

For example, a person may follow the norm of not stealing because it is in their self-interest to avoid getting caught and punished. However, they may also follow this norm because they believe it is important to respect the property of others and contribute to the overall stability and prosperity of their community.

In this way, norms can be seen as a way to balance the interests of the individual with the interests of the group. They allow individuals to pursue their own goals while also contributing to the common good and maintaining social harmony.

However, it is also important to recognize that norms can be used to justify actions that are not in the best interests of the group or society and that some norms may be harmful or oppressive. In these cases, it may be necessary to challenge and change these norms to promote the common good.

Are Norms Followed out of Self-interest?

Social norms can serve a variety of different purposes, and whether or not they are followed out of self-interest depends on the specific norm in question.

When people obey norms, they often have an outcome in mind. They want to avoid the disapproval—ranging from raised eyebrows to social exclusion—of other people. More generally, behaviour guided by social norms is supported by the threat of social sanctions that make it rational to obey the norms.

A second answer to the claim that people obey norms because of the punishments attached to violations of norms emerges if we asked why people would punish others for violating norms. What's in it for them? One answer could be that if they do not express their disapproval of the violation, they will themselves be at the receiving end of the disapproval by third parties.

Overall, the purposes of social norms can be complex and varied and may involve a combination of individual and collective interests.

Do Norms Promote Common Interests?

Yes, norms are the unwritten rules or standards of behaviour that are accepted within a group or society. They are often used to promote common interests within a group. Norms can be both positive and negative and they can vary greatly depending on the culture, community, or situation.

Positive norms are those that promote the well-being of the group or society and encourage cooperation and harmony among its members. Examples of positive norms include being polite, helping others and respecting the rules of the group. Negative norms, on the other hand, are those that may harm the group or society and discourage cooperation and harmony. Examples of negative norms include discrimination, violence and breaking the rules.

Overall, norms play an important role in promoting common interests and values within a group or society. They help establish a sense of order and stability, and they help ensure that the group is functioning smoothly.

Conclusion

In conclusion, social norms play a significant role in influencing economic decision-making. Norms provide a framework for how people are expected to behave in different situations and can shape people’s attitudes and decisions. It is also important to note that social norms can change over time and may vary significantly from one group or society to another. This can have significant implications for economic decision-making and can lead to different outcomes in different contexts.

Additionally, social norms can sometimes be harmful or oppressive and it may be necessary to challenge and change these norms to promote more inclusive and equitable economic outcomes. This can involve initiatives to reform laws and policies as well as efforts to shift cultural attitudes and behaviours. They play a complex and multifaceted role in economic decision-making and it is important to consider their influence when examining economic systems and outcomes.

Through the several different examples explained in the article, it can be said that social norms help create a sense of order and predictability in the economy as individuals tend to follow the norms that are prevalent in their society. By understanding the role that social norms play in shaping economic choices, we can better understand the forces that drive economic behaviour and make more informed decisions as consumers and producers.

BOOK REVIEWS

THE LAST HEROES: FOOT SOLDIERS OF INDIAN FREEDOM *by P. Sainath*

and

THE MIDDLE OUT: THE RISE OF PROGRESSIVE ECONOMICS AND A RETURN TO SHARED PROSPERITY *by Michael Tomasky*

Reviewed by Annavajhula J C Bose, PhD
Shri Ram College of Commerce, Delhi

These two books were impressively good reads, just like *Kantara* was a wonderful shamanistic movie to watch on the eve of 2023. They can be appreciated independently and interdependently. The focus of the books, rather similar to the movie's focus, is on the study of society from the viewpoint of common people—what they think, about freedom and necessity and what moral beliefs and attitudes—shamanistic or not—govern them regarding shared prosperity. The two authors are exemplary investigative political and economic journalists. They have more refined sensitivity and sensibility than that of typical economists.

Almost a quarter century ago, on behalf of the people, Sainath made a searing indictment on Independent India's developmental realities of the present connected to the past. In his first book, "Everybody Loves a Good Drought", he pointed out that one out of every third person in the world who lacks safe and adequate drinking water is an Indian. Nearly half of the illiterates in the world are citizens of this country. Every third child outside schools on the planet is an Indian. The highest number of absolute poor live in this country. So do the largest number of those with inadequate housing. Indians have a shockingly low per capita consumption of textiles in the world. There are more job seekers registered at the employment exchanges of India than there are jobless in all the twenty-four nations of the OECD put together. Yet, this nation has over forty-four million child laborers, the largest contingent in the world. India's dismal position in the UNDP's Human Development Index has, if anything, fallen. Every third leprosy patient in the globe is an Indian. So is every fourth person dying of water-borne or water-related diseases. Over three-fourths of all the tuberculosis cases that exist at any time worldwide are in this country. No nation has more people suffering from blindness. Millions of Indians suffer from malnutrition. Central to the philosophy of Indian development, is the idea that we can somehow, avoid the big moves, thepainful ones, the reforms that Indian society needs—like land reform, literacy, decentstandards of health, shelter and nutrition, and eradicating child labour. The Indian elite, excited about globalization, are not bothered that even the authoritarian states of Singapore, Malaysia, Indonesia, Taiwan, and South Korea provide these basic necessities to the people. Citizens, however, do bother. The issues of land, forest, and water resources remain fundamental to real development. The poor are acutely aware of this. After all, 85% of the Indian poor are either landless agricultural labourers or small and marginal farmers. They know where it hurts. They are net purchasers of food grains. Hikes in grain prices hit them profoundly. Inflation is strongly linked to food prices. So its impact on these sections is always worse. The public distribution system is in a state of advanced decay. The so-called targeting of the poor on a special basis has not prevented the incidence of starvation. The upward revision of grain prices is never matched by rises in daily minimum wages. Real development would mean more than just letting them know the plans for the elite. It would mean their involvement in decisions for progressive development. Not even one migrant worker would fail to lament about the inequitable land distribution. Just a little over 1% of the total cultivable area has actually been redistributed. A profoundly undemocratic streak runs through India's development process. The exclusion doesn't end at the symposia. Villagers are robbed of control over water and other community resources. Over time tribes have been cut off from the forests. Yet, the elite vision holds the poor and their experiences in contempt. And there is a growing disconnect of the mass media from mass reality. Stakeholders have often abdicated their duties toward citizens. Human rights have been diluted. Pressing issues are often left to NGOs, while the state tinkers around with how to double the wealth of the richest 5%. International funding agencies are using NGOs to dump fertilisers, harmful contraceptives, and obsolete technologies. There are pressure groups trying to push drip irrigation in districts that have abundant rainfall. They hawked a technique used for the deserts of Israel because some corporation had something to sell. Besides, in India, many NGOs are contractors for government schemes. Some government officials have relatives running NGOs. Quite a few establish an NGO or begin to head one the moment they retire. Few NGOs do excellent work when filling gaps. They produce effective within modest objectives. But they cannot be a substitute for the state. They cannot fulfill state responsibilities. There has been no substantial increase in the efficacy of the State. Every five years the public is disappointed by blaring gaps between promises and actions. NGOs are only accountable to their funding agency—which may support, even spur dubious activities that prove harmful to society. The soul and character of 'media' has been sucked into a growing process of corporatization, it has eroded and proved increasingly inept at covering the weaknesses of the development process.

“The Last Heroes", is the much-awaited successor to "Everyone Loves A Good Drought" and its signed copy is one of my prized possessions. Here, Sainath reinstates the aforementioned facts. He writes that millions—men, women and children working different occupations, hailing from different regions, speaking different languages, practising different religions, and believing in various ideologies had fought for independence from colonial rule only to realize that freedom and independence are not the same. Hence, their struggle for freedom continues. Here, Sainath has explored the intriguing question of what is “freedom?” answered by these people through their own unique stories.

Tomasky too, speaks about the people and their problems and disappointments in the American context, although they hold good everywhere. A common inference indirectly from Sainath and directly from Tomasky is that people around the world need progressive economics, not free market economics, to be free from want, exploitation and oppression, anddiscrimination. It is as if people are politically proclaiming to Connect economic ideas to the ideals of democracy and freedom. That means, destroying the myth of Homo Economicus and replacing it with human tendencies.

Today’s economic discourse in the realm of politics proceeds entirely from the old neoclassical, neoliberal, and Friedmanesque assumptions. We need to put a fuller view of human nature back into economics, and politics. People thrive on competition but they also value cooperation, trust, and the esteem in which they are held by others. Therefore, the way we shape economic policy should reflect this complex view of what motivates our behaviour in the marketplace.

Democracy is more important than capitalism. When you have capitalism capturing democracy, when you have the kind of regulatory capture where powerful corporations can arrange the rules for their benefit, that is not real capitalism. Capitalism without democracy turns into crony capitalism, which then turns into oligarchy. Economics and democracy are thus not the separate issues they are taken to be in the media. They are the same issue. Democratically elected officials need to explain to people that if the economic and political systems are hacked by the wealthy, if inequality continues unchecked, and if we can’t create an ethos wherein businesses understand that their long-term interests are better served by a healthy democracy to which they contribute their share than by a corrupted and out-of-kilter one that asks little of them, then the impacts on democracy will be severe, and it will fail. This is a connection few politicians make. It is of vital importance that they do.

Today the right-wing economists and politicians own the word freedom. For the middle-class and working-class people, it needs to be taken back and redefined. It is our economic vision that will give people freedom, and the right-wing vision of freedom has left millions struggling. Freedom is not freedom if you work full-time and live in poverty. Freedom is not freedom if a single medical crisis can drive you to bankruptcy. It is not freedom if childcare is too expensive for you to hold a job, or if you are born poor and at every turn are blocked in your rise: by underfunded schools, overpriced colleges, and usurious college loans. Not to mention women's right to reproductive freedom, or the right to go out in public without being gunned down. The first right of all, in many ways, is the right to be secure in one's person. These are absolute freedom issues. Freedom of speech and worship were long-established and not controversial freedoms. The right-wing glorifies these freedoms and attacks freedom from want and from fear and this is the freedom, the realisation of which economics and politics must address. We need economic programmes that provide people freedom to achieve their full potential, to change jobs without having to worry about their health coverage, to pursue their ambitions knowing that they can enroll their kids in a safe childcare facility, to try community college without falling into debt, to move to a new part of the country because taking such chances becomes less risky, or to stay in their hometownbecause a certain level of public investment has ensured jobs and opportunity in town again. The free market has reduced people's freedoms by making their lives harder. Smart government investments can open up options in people's lives and widen their scope of freedom. The freedom that ordinary people cherish is the freedom to live happier, more productive lives in a society of shared prosperity.

To conclude, I don't want to labour the point that books like these which change the way people think about the fundamental principles of economics and politics and how they relate to the sort of society the majority of ordinary people want, are the books you must read if you want to propose sound economic policies that work for them. You need to be careful not to be carried away by technocratic economists and politicians justifying big business on the one hand and repressive austerity and fascism, on the other, for society at large even as they speak of a pure economics paradigm ushering in politically neutral science of policies and individual behaviour.

A more genuinely liberal and just economics will give us a fairer society (and by the way, better growth too)—and it will strengthen democracy and vastly increase freedoms for all. This is very much possible. This is the minimally progressive message you can take from the books reviewed here. If you are a bit more radical type, you may be drawn to Bernie Sanders politics and economics of democratic socialism, which establishments everywhere do not want.

If you are also mystical like me, you can strengthen the minimally progressive argument linking humanistic economics with the values of democracy and freedom further by also exploring the human-nature relationship through the study of interlinkages among bioculturalism, shamanism, and economics.

I am permanently beholden to Palagummi Sainath, Michael Tomasky, and Rishabh Shetty.

References

1. Clara E. Mattei. 2022. The Capital Order: How Economists Invented Austerity and Paved theWay to Fascism. The University of Chicago Press.
2. Joan Robinson. 1970. Freedom and Necessity: An Introduction to the Study of Society. G.Allen and Unwin.
3. https://www.vox.com/2019/6/12/18663217/bernie-sanders-democratic-socialism-speech-transcript
4. https://www.resurgence.org/magazine/article2631-bioculturalism-shamanism-economics.html

THE PSYCHOLOGY OF MONEY *by Morgan Housel*

Reviewed by Hardit Singh
Sri Guru Gobind Singh College of Commerce

About The Author

Morgan Housel is a partner at The Collaborative Fund. His book The Psychology of Money has sold over two million copies and has been translated into 52 languages. He is a two-time winner of the Best in Business Award from the Society of American Business Editors and Writers, winner of the New York Times Sidney Award, and a two-time finalist for the Gerald Loeb Award for Distinguished Business and Financial Journalism. He serves on the board of management at Market.

Review

The Psychology of Money by Morgan Housel is a fascinating and thought-provoking exploration of the intricate relationship between money and human psychology. In this book, the author digs into how money affects our feelings, emotions, and behaviours, and how these factors shape our financial decisions and outcomes.

One of the greatest edges the book has is its ability to help readers understand how their attitudes towards money are shaped through psychological factors, and how these attitudes can have significant consequences on their financial well-being. In this book, Morgan shares 19 stories exploring the strange way people think about money and observing the other factors which make them think like that.

This book begins with the story of Richard and Ronald, and by contrasting their stories, the author establishes the central theme of the book: doing well with money has little to do with how smart you are and a lot to do with how you behave, and behaviour is hard to teach even for the smartest people.

One thing that is discussed in every single chapter is The Magic of Compounding, for compounding the only rule that works is to shut up and wait, and it’s so true for money. Warren Buffet’s net worth at age 30 was 9.3 million dollars which accumulated and compounded so much that at age 60 his net worth was more than 80 billion dollars. His skillis investing but his secret is time. And the book shares the concept of compounding in a very contrasting way.

Luck and Risks are an inseparable part of the stock market. No one knows where the market will go. They are the reality that every outcome in life is guided by forces other than individual efforts. Just like every Bill Gates, there is a Kent Evans who was just as skilled and driven but ended up on the other side of live roulette'. And that's just how life works. I always thought that luck has no importance in our lives, and the one who works the hardest isthe one who will rise to the top. But in reality, nothing is as simple as it seems. Sometimes in life, bad decisions have a positive outcome and (good and experienced decisions) make others fall.

Whenever we see a guy in a Benz we always consider his car as his meter of wealth. Why so? Because it is human psychology that we believe in what we see and are doubtful of what we cannot see. But in reality, owning or renting a Benz can only make you rich but never. Make you wealthy! Richness is the money you have spent on stuff around you but, Wealth is that financial asset that hasn't been converted into stuff you see.

Investment decisions are typically taught as a Math based field, where historic data plays an important role in the decision making. But in the real-world people don't make decisions on spread sheets, people make decisions on their emotions, their ego, pride, and their unique worldview, which all get jumbled together. The book gives us chances to win and take advantage of the long tail, by reducing the ego and waiting for the best opportunity which only comes when you save, save and save!

One of my favourite lessons from the book is what is the purpose of earning money? What is it that you are earning money for? How much money do I need to live a life of comfort? What does it take to earn that much money? These are the questions that I ask myself but never had answers to. In the book, Morgan Housel shares that the true intrinsic value of money is to give you control over your time. Wow!

Whenever people say that they want to be a millionaire, they don't mean that they want to grow their money. In essence, what they are saying is that they want to earn millions and spend millions on luxury goods. If their motive for earning money is to spend they will be a part of a treadmill that will never stop. But if you are earning money, with the true essence, you can buy time with money. In my opinion, this is the true intrinsic value of money.

Is there a reason why so many wealthy investors sign their bankruptcy papers after adding up a few million dollars to their bank account? I was very curious why some people even after having a net worth of millions of dollars ended up having 0 dollars in their bank account. Why is it so? The book explains very well that there is a difference between *getting* wealthy and *staying* wealthy. Getting wealthy is easy but holding that money for a long time so that it could compound itself in the future is very hard, especially when you see that in the short run your stocks are losing their value.

Strengths and Weakness

One of the major strengths of the book is that every single chapter starts with a story of two opposite characters who do something crazy with their money and on that basis (how they behave with their money), the author draws multiple conclusions which compound in the following chapters.

I like how the author described the most important and counterintuitive features of the psychology of money in a very crisp and refined manner. He captivated me with his writing style, he draws broad patterns of human psychology from a wide variety of disciplines such as medicine, arts, industry, and politics, and merges them with the psychology of money.

Recommendation and Final Thoughts

The book is not the one that will fill you up with investment strategies or methods. Instead, this book talks broadly about people’s relationship with money. It is short and simple, yet explores massive ideas that require significant thought and consideration. It gives you a lot to think about before investing, saving, and spending. You can finish this book in a week, unlike other books that are too lengthy.

THE UNINHABITABLE EARTH *by David Wallace-Wells*

Reviewed by Anika Jain
Miranda House

The Uninhabitable Earth is a 2019 non-fiction book by David Wallace-Wells. This book revolves around the idea of global warming and its consequences. This book is inspired by his New York magazine article, "The Uninhabitable Earth". I believe that every person living on this earth should read this book as it successfully makes the reader feel perturbed about the damages and the consequences Earth is facing at present, and are probable to get worse in the future due to the destructiveness and cupidity of mankind. It is, I promise, worse than you think.

If your anxiety about global warming is overpowered by fears of sea-level rise, you are barely scratching the surface of what terrors are possible. Especially for a citizen from a country like India and if you know what's going on recently in terms of pollution, mainly carbon emission. Global plastic production is expected to triple by 2050 and by that point there will be more plastic than fish in the planet's oceans. In fact, plastic disposal has been amajor cause of the depletion of marine life.

This book is full of facts about what's happening around the world, about which we hardly have any idea. The writer draws a clear picture of what's going to happen to our planet and to us in future if we don't curb our emission rates. It contains comprehensive and well-presented data on the climate crisis. While reading this book readers might feel like discontinuing the book due to the writer's discontinuous flow of thoughts and problems which can be difficult for normal readers to understand but it covers some important aspects of climate change not addressed in general like hunger, wildfire, draining of fresh water, drying up of oceans, unbreathable air and economic collapse which are soon going to be the reason for the collapse of our ecosystem. "Elements of Chaos", the book's longest section, is composed of 12 short and brutal chapters, each of which foretells a specific dimension of our forecast doom, and their titles alone: "Heat Death", "Dying Oceans", "Unbreathable Air" and "Plagues of Warming", are enough to induce a panic attack. A scary read and a wake-up call that we all need. The book may come across as apocalyptic and also as a book that spells doom and casts a shadow on our sunny lives.

Wallace-Wells undertakes two tasks in this book. First, he brings us up to date with the latest climate science and the most reliable forecast about the effects of climate change. The works of thousands of scientists converge around a variety of problems that would make everlasting consciousness. As the writer points out, we've been conditioned to think that climate change is just rising sea levels or increasing temperatures here and there. It's not so simple. In general, people have this unconscious mindset "I don't live near the coast, so what's my worry," because the problem is manifold and universal which everyone has to understand as there is no escape. The swelling seas—and the cities, they will drown. It has dominated the picture of global warming, and so overwhelmed our capacity for climate panic. Rising oceans are bad, but fleeing the coastline will not be enough.

Temperatures will rise to such an extent that some areas become nearly unhabitable, especially around India and the Middle East, droughts and floods will increase in frequency and severity, and wildfires will also increase. Severe weather events, such as hurricanes and tornados, will occur and become stronger. We should start bracing ourselves for the designation of a category 6 hurricane. Established diseases will spread, and new pathological organisms will evolve in our hothouse atmosphere. Crops will fail and yields decline. Nature will survive but species will disappear like thin air. We'll see Nature altered in ways that we don't know and want to know. Human beings will be forced to migrate to survive or probably won't be surviving on this planet. Conflicts will happen and intensify, from domestic quarrels to wars and civil unrest. We seem intent on creating a perfectly materialistic world of the war of all against all.

The lessons there are unfortunately bleak. Three-quarters of a century since global warming was first recognized as a problem, we have made no meaningful adjustment to our production or consumption of energy to account for it and protect ourselves. For far too long,casual climate observers have watched scientists draw pathways to a stable climate and concluded that the world would adapt accordingly; instead, the world has done more or less nothing, as though those pathways would implement themselves. These lines from the book point out how indifferent and reckless our attitude has been to even bother making the slightest of change in our consumption or production.

Wildfires that had swept through different states in California like, Malibu in 1956, Bel Air in 1961, Santa Barbara in 1964, and Watts in 1965 made it to the headline and on television and via text messages. Five of the twenty worst fires in California history hit the state in the fall of 2017, and over nine thousand separate ones broke out in this year itself, that burned more than 1,240,000 acres—nearly two thousand square miles. In the past, Hurricane Katrina, Harvey, Michael, Sandy and Irma, Americans have gotten acquainted with the threat of floods, but water is just the beginning. Someday the whole city might settle under the water. In the affluent states of the West, even those conscious of environmental change have spent the last few decades driving our highways and walking our street grids, navigating our supermarkets and all-everywhere internet and believing that we had built our way out of nature. With climate change, we are moving instead toward nature, and chaos, into a new realm that we humans have failed to foresee.

The author says that when critics of Al Gore compare his electricity use to that of the average Ugandan, they are not ultimately highlighting conspicuous and hypothetical personal consumption, however, they mean to disparage him. Instead, they are diverting the attention of the people towards the structure of political and economic order that not only permits this disparity but feeds and benefits from it. This is what Thomas Piketty calls the "apparatus of justification", and it justifies quite a lot. If the world's most conspicuous emitters, the top 10%, reduced their emissions to only the EU average, total global emissions would fall by 35%. Wallace-Wells, however, remains surprisingly optimistic.

In the second portion of the book, after establishing the likelihood of various varieties of hell that we humans are creating for ourselves, and choosing it. Wallace-Wells addresses our responses and also how individuals, societies, and countries may respond to the increasing pressures that we face.

We humans, like most of our fellow comrades on Earth, have three instinctive responses to threats: fight, flight, or freeze. I couldn't help but think along these lines as I read about reactions to our increasing certain knowledge. As a whole, we've chosen to faint, to swoon at the thought of what we've created and then distract ourselves from our plight. We consciously distract ourselves from the challenge at hand, and 21st Century consumer capitalism is making us do this. Some say it's just "God's will" and take a dreadful approach to justify some bit of Bible misreading. Others seek to flee through technological problems, some of which may prove useful, but none of which promise reliable remedies and none of which can be attempted without high costs and a lot of uncertainty about unintended consequences. The super-rich investigate how to govern the bunkers they're building to try to escape the wrath of the masses who will seek both vengeance and access to the resources that the super-rich have squirrelled away.

But as Wallace-Wells makes clear, we have options and the potential to dramatically reduce the suffering that the future holds for all humans if we don't take sufficient steps to alleviate our plight. And I believe, or at least I possess a ray of hope that we humans can respond in time. Thomas Friedman recently quoted an elementary but valuable insight from economic thinker Eric Beinhoffer, "There are only two ways to cure political tribalism: a common threat or a common project." Friedman uses this point to recommend that we need to undertake a common project to repair the foundations of the middle class. The writer suggests that repairing the foundations of the middle class must be subsumed under the project of dealing with climate change, which is a common threat and can become acommon project. Indeed, starting now, we must reimagine our political structures, our political economy, and our entire culture. We have the potential to use the impending catastrophes to attempt to build a more just society. We either seek a just and sustainable world, or we can expect increasing international strife and civil anarchy. Environment and economy are interdependent and need each other. Hence, a development that ignores its repercussions on the environment will destroy the environment that sustains life forms.

In the aftermath of the 2008 crash, a number of historians and economists studying –fossil capitalism have started to suggest that the entire history of swift economic growth, which began somewhat suddenly in the eighteenth century, is not the result of innovation or the dynamics of free trade, but simply our discovery of fossil fuels and all their raw power. The timeline of growth is just about precisely consistent with the burning of fuels. But you do not have to believe that economic growth is a mirage produced by fossil fumes to worry that climate change is a threat to it. There is a widespread inclination toward climate change as a form of compound payback for two centuries of industrial capitalism. Wallace of individual choices. Choosing to eat vegan burgers, or sip out of reusable straws will not make difference on a huge scale. Vote for leaders who understand the scale of the crisis and make climate change their main priority, he urges.

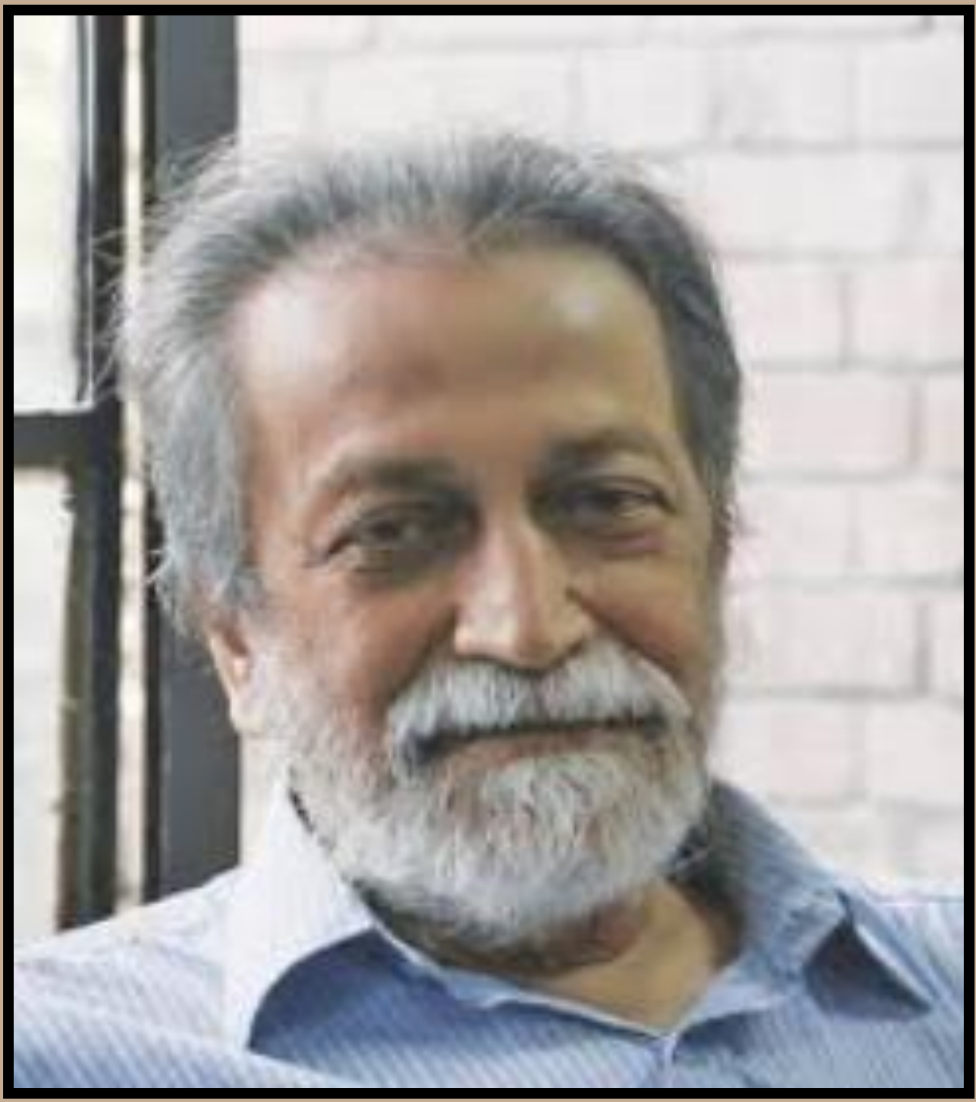
The book, however, is less focused on solutions than on clarifying the scale of the problem. Till the end, Wallace is determined to focus on the destruction instead of ending the book on a positive and hopeful note.

Personal comment: Millennials will face this problem and must live with the consequences.

Of course, this is true. We bear the burden of responsibility for addressing our planetary illness. Alleviating the devastation of climate change must be a cross-generational project. We must begin to strive hard every day to bring about little changes even if they are small to conserve our planet earth. We have a moral obligation to hand over the planet earth in good order to our future generation. At the least, we should leave to the next generation a stock of quality resources no less than what we have inherited.

INTERVIEWS

In Conversation with: **Prof. Prabhat Patnaik**



Prof. Prabhat Patnaik is an Indian economist and political observer known for his astute study of the political economy and Marxist theory.

Editor: Sir, you are an extremely revered political commentator and have published several books typically assessing capitalism. We wanted to know about the necessary background and theories that helped you lay down the foundation of your ideology in that regard.

Prof. Prabhat Patnaik: Well, in terms of background, I must say my father was a freedom fighter. He actually had joined Gandhi Ji's Civil Disobedience Movement and was in jail for 10 years or so for various periods of his life. He went from the Congress to the Congress Socialist Party to the Communist Party, and was one of the founders of the Communist Party in Orissa. From my childhood I actually lived in the shadow of a possible revolution. Then I started reading Marxism seriously, that is when I came to Delhi University, as a part of my course work. Those days we used to have a paper called 'The History of Economic Thought',I don't know if you have it now in B. A. Honours, and as a part of that course I started reading Marxian Economics, which of course I continued reading later in life when I was doing my PhD. In terms of economics I think three Polish economists have had a deep influence on my thinking. One is Rosa Luxemburg who was a great revolutionary and of course a profound economist; the other is Michal Kalecki, who independently discovered Keynesian General Theory even before Keynes; and the third is Oscar Lange, a Polish economist who has a book called *Political Economy* in several volumes. Volume One of *Political Economy*, which consists of his lectures on Political Economy, I found very useful because he visualised capitalism as a spontaneous system and I think this is something that has influenced me all my life. By a spontaneous system I mean it is a system in which all the economic agents who are participating, act not of their own volition, but because they are coerced by the system into acting in particular ways, so in that sense, it is a system of generalized alienation. You don't have workers doing things because they like doing them or even capitalists doing things because they like doing them; all are forced by competition into doing the things they do. In fact, Marx has talked of capitalists being "capital personified" which means that through the actions of capitalists the tendencies of capital manifest themselves.

As an interpretation of Marxism, and not many people interpret Marxism this way, Lange's view had a very big influence on me. I've just written a book interpreting Marxism this way which should be coming out later this year. In terms of Indian history, Prof. Irfan Habib's work had a deep influence on me; Prof. Amiya Bagchi's work on the colonial period had a deep influence on me as well. So these were a few intellectual influences; and of course given my background such that I lived in the shadow of a possible revolution all my life, I was drawn towards Marxism and towards the kind of positions I take.

Editor: Thank you so much for that answer. It is often pointed out in political economy theory that the capitalistic systems dynamic is a constant tussle between order and disorder, then how is it that we have very powerful, stable patterns or ordered patterns over time?

Prof. Prabhat Patnaik: Well you know the standard picture of capitalism that is given, is that it's a system in which individuals participate and you have a set of markets and the markets clear; the demand and supply ultimately equalise through price flexibility to clear markets. It is seen as a self-regulating system in which price flexibility actually gives rise to asituation of equilibrium. There may be variations among the different authors but roughly this is the general view. It sees capitalism essentially as a self-contained system, a system that stands on its own, and doesn't really require any external support. Now I don't think capitalism has ever been that way; and, what is more, I don't think it will survive as a system if it was actually that way, i.e. if it was a completely closed, self-contained system that generally tended towards an equilibrium.

Even if it is the case that price changes may occur occasionally in a few individual markets, if you look at the macro variables the picture is quite different. If the price-level changed because of overall excess supply or excess demand, then nobody would be giving loans. No creditor would give a loan to a factory or an enterprise if that creditor thought that tomorrow the price level in the economy might rise or fall by 20%. In the former case the value of the loan would fall, and in the latter case, while the real value of the loan would rise, the factory would go bankrupt, it won't be able to service its debt; and if I know that the enterprise I am giving a loan to might become bankrupt tomorrow, I won't give the loan. So if you actually think of capitalism as a system in which there are these big fluctuations in prices and money wages, which is what traditional theory believed and even post-Keynesian theory has revived through the so-called real balance effect, then capitalism would not be a functioning system.

It is a functioning system because in any given period, the overall level of money, wages and prices are given and over a period of time these variables change slowly. Therefore it is best to look at capitalism not as a flexible price system but as a fixed price system; and if it's a fixed price system then of course depending on variations in aggregate demand there would be quantity adjustments and not price adjustments, as Keynes had suggested.

Now if this is the case, then this system cannot be a self-contained system: suppose it is the case that there is a reduction in output and employment because there is deficiency of demand; then people would be investing less and less, and if they invest less there would be a further shrinking of the quantity produced, and so on. Then the system would become extremely unstable. The reason why the system is not unstable is because it has always had access to external markets. I believe colonialism played a crucial role here; the colonial markets were very useful for Britain in maintaining a high level of activity not only within its own economy but in the entire capitalist world. All other capitalist countries which were developing at the time had free entry to the British market, and Britain had free entry to the colonial market; therefore all of them piggybacked on Britain, and that's how capitalism developed in a more or less steady manner.

In the period when you had access to these colonial markets, which means the entire period from the middle of the 19th century until the first world war, that following John Hicks we can call the long boom of the long 19th century, fluctuations in the level of activity were relatively muted. Whenever there was a downturn, fresh incursions were made into colonial markets and the downturn was halted. The exhaustion of colonial markets which occurred around the time of the First World War was responsible in my view for the onset of the Great Depression.

The next big boom occurred in the post second world war period with state intervention playing the same kind of role of providing an external market. So, I would say that what you called periods of relative stability and instability are really periods when external props have been available to capitalism and periods in which they have not been available. I believe now we are in a phase in which external props are not available, which is why we have entered into a prolonged period of stagnation after the financial crisis of 2008. All this has been discussed at length in a book jointly authored by Prof. Utsa Patnaik and myself, titled *Capital and Imperialism.*

Editor: Thank you so much for your answer, sir. Do you believe it is possible to shift the popular discourse to bring the shortcomings of neoliberalism to the forefront rather than let it be masked by a critique which stops short at criticism of economic policies and neo-fascist governments whose end driver is neoliberalism itself?

Prof. Prabhat Patnaik: I think the critique of neoliberalism arises not because of any likes or dislikes but because it's the truth. Neoliberalism is a situation where there is relatively unrestricted movement of commodities and capital, including finance, across country borders. This was not the case in the 50s and 60s but this is the case now. Whenever you have such unrestricted movements, then the livelihoods of millions of people become dependent on the whims and caprices of a bunch of financial speculators. This was Keynes' objection to capitalism; if for some reason the financiers or the speculators develop a high liquidity preference, then the speculative demand of money rises and the interest rate rises, so that investment falls and you have a period of stagnation in which millions are unemployed. The livelihoods of real, concrete flesh-and-blood people are determined entirely by whims and caprices of a bunch of financial speculators. Now this Keynes thought was an irrational arrangement. He as you know was very profoundly anti-socialist and very profoundly anti-communist, but he thought that capitalism should be corrected, should be rectified in order to ensure that socialism did not come on to the agenda. For that, it became necessary for him to provide a real hard solid analysis of capitalism. That kind of analysis is required even today; and economists who are analysing reality should insist on speaking the truth irrespective of what their ideological belief is.

Given the fact that you speak the truth then what conclusions you draw from the truth as far as policy is concerned is something where your ideology would come in. Keynes believed that you could actually reform the system from within through the intervention of the state. Marxists by contrast believe that you cannot reform the system; the system has to be transcended. This difference is something which arises at the level of the policy conclusions you draw from your specific analysis; but the analysis has to uncover the truth of a particular system, in this case capitalism.

This however has not been the case as far as economics is concerned; and even segments of the Left in Europe have become more or less hegemonized by a certain liberal thinking that does not wish to point out the contradictions of contemporary neoliberalism. That is why the Left doesn't exist over large parts of Europe. Because of the fact that these segments are hegemonized by the liberal view which holds neoliberalism in high regard and as something beyond which you can't go, they tend to close their eyes to its shortcomings. This is facilitating the rise of neo-fascism in Europe.

Take the case of Italy. Italy was a country with a remarkable progressive tradition. It had outstanding Marxist thinkers, like Antonio Gramsci. The Italian Left led the Resistance against Mussolini. It made great sacrifices. The Italian Communist Party used to be the biggest communist party in the Western world. But, the Italian Left disintegrated and the Communist Party does not exist in the old form. The main core of it is now called the Democratic Party, and the Democratic Party has got hegemonized by liberal thinking and is not willing to attack neoliberalism. And that's why, in Italy, you actually have the emergence of the extreme Right. Neo-fascism is emerging because there's a huge amount of unemployment, a huge amount of distress, as far as the ordinary working people are concerned, but the Left is not articulating it.

If you don't take account of that distress, if you don't actually point a way forward beyond that distress, by holding the promise of an alternative world, an alternative economic scenario, then, naturally, the neo-fascists would thrive. They are not going to find any solution to the crisis of capitalism. But, they at least, talk about workers' distress; they atleast, talk about what the ordinary people are facing and therefore, they get the support of the ordinary people. Having got the support of the ordinary people, they are going to betray them by providing no solutions to their distress, other than banning migrants; their solution to unemployment is to stop immigration, as if, immigration is the cause of unemployment. So, the neo-fascists cannot find any solution but they are talking about people's problems while the Left over large parts of Europe is too hegemonized by neoliberalism to be able to really speak the truth; it is therefore losing support of the working people to the neo-fascists. And this is happening in many advanced countries.

Take the case of Donald Trump. How did Trump come to power in the United States? Hillary Clinton wouldn't even recognize that there was a serious problem of unemployment. Only when Trump started talking about unemployment, Hillary Clinton also started talking about unemployment. Obviously, Trump did nothing about unemployment, but he at least recognized it and this is what really drew sections of the working class towards him.

So, it is very important for political formations, particularly, progressive political formations, if they want to preserve the democratic structure, if they want to preserve society from the ravages of fascism, that they speak the truth, that they recognize the pains of ordinary people and the distress they are experiencing; only then would they be able to find some way forward.

Editor: Thank you, sir. Another question we had was, you had spoken about the crisis of stagnation that is brought on by neoliberal policies as income inequality widens. So what economic and social recourses can serve as means to be freed from this crisis?

Prof. Prabhat Patnaik: Well, this is a crisis associated with neoliberalism, it did not exist earlier. The post-war period of Keynesian demand management, of state intervention in demand management was a period sometimes referred to as the "Golden Age of Capitalism"; it was a period in which the unemployment rate was extremely low.

I went to England in 1966 as a student. I went to Oxford to do my PhD, to do my Post Graduate work. At that time in Britain, the unemployment rate was less than 2%. Never in British history have you had such a low level of the unemployment rate. Similarly, in the United States around those days, the unemployment rate was about 4% or less than 4%. Again, never in the history of the United States did you have such low unemployment rates.

And because of the high level of aggregate demand that ensured low unemployment rates, you found that there were high rates of total output growth and high rates of labour productivity growth. Because of the low unemployment rate, the workers and the trade unions were strong, so that the high rates of labour productivity growth translated themselves into high rates of growth of real wages. Workers' living standards rose both because of this and also because of low unemployment. This period therefore, is known as the "Golden age of Capitalism"; never before did ordinary people gain as much from this system as in that particular period.

But, look at the contrast now. Under neoliberalism since capital is mobile between the North and the South, you can actually relocate your factory from the United States or from the UK or from Germany to China, to Vietnam, to India, to Bangladesh, to Indonesia and so on, where you have large labour reserves and low real wages. Because of the possibility of relocation, the wages of the workers in the North too become linked to the labour reserves in the South. If the labour reserves in the South keep the real wages in the South low, then in the North, workers can't keep raising their real wages through trade union bargaining. Because if they did, then capital would move out from the North to the South. For this reason, real wages everywhere have remained more or less stagnant, pulled down by the vast labour reserves of the South, which are themselves a creation of colonialism

I am not saying real wages get equalised through such relocation, but certainly the vector of real wages has not been rising. Joseph Stiglitz, in fact, did an estimate. He found that the real wages of an average male American worker in 2011 were marginally lower than in 1968. Now, if the vector of real wages is not rising but the vector of labour productivities is, then the share of surplus in output rises. This not only raises the inequality in the distribution of income, but also causes a deficiency in aggregate demand, as the marginal propensity to consume out of the surplus is lower than out of wage incomes.

This is the cause of the crisis we are witnessing. We are witnessing a very Keynesian kind of crisis in which there is insufficient aggregate demand because of a redistribution of income from the working people to the surplus earners.

Now, that is something which arises because of the very nature of neoliberalism. The question immediately arises: what about Keynesian demand management? Why can't the state intervene in overcoming this deficiency of aggregate demand? And that is where the specific nature of neoliberalism becomes important. Because, you see, state spending to overcome deficient demand would work only if this spending is financed either by a tax on capitalists or through a fiscal deficit. Suppose the state taxes the workers and spends, then workers' consumption goes down, and since the workers consume the bulk of their incomes there is little net addition to aggregate demand because of state spending. If the state spends Rs.100 by taxing workers Rs.100, then workers' consumption would go down by nearly a hundred rupees just as government's expenditure goes up by hundred rupees; this means is very little net addition to demand.

Therefore, demand management by the state works only if additional public expenditure to overcome deficiency of aggregate demand is financed essentially by taxing savings; and you can tax savings by taxing the saving class which is fundamentally the corporates and the capitalist class. Of course if you have a fiscal deficit, then you are not taxing anybody and state spending financed by a fiscal deficit obviously adds to aggregate demand.

But these ways of financing public expenditure are not permitted by globalized finance. We live in a world today where finance is mobile across borders, i.e. we have globalised finance, but we have nation-states. The government belongs to the country in question but finance is globalised.

So, if a government decides to raise the taxes on the rich, in that case, finance would flow out of the country. It'll go somewhere else, where the taxes are lower. Likewise, finance does not like fiscal deficits. As you saw the other day, Liz Truss (Former UK Prime Minister) was thrown out of office because she was proposing a higher fiscal deficit; British finance capital did not like it and they just threw her out. So, the point is, finance likes neither fiscal deficits nor taxes on the capitalists, and on the rich in general. Because of this, state intervention to raise the level of aggregate demand is more or less foreclosed in a neoliberal economy.

This problem might not arise if we had a world state. The world state could actually tax the world's rich and spend more to generate larger world demand because it would not be bothered about any flight of finance out of its domain. Finance after all cannot leave the world and go off to the moon. But a world state of course is not on the agenda; it is not feasible at this moment. Therefore, the capacity to overcome the crisis within the confines of neoliberalism is really extremely limited.

And if that is the case, then overcoming the crisis, which means generating larger employment and a larger level of real wages, which would arise if you had larger employment since the bargaining strength of the workers would then be greater, would require going beyond neoliberalism. I believe going beyond neoliberalism entails going towards socialism.

I believe that because I am a socialist. But it is conceivable that you can take a Keynesian kind of position, and argue that we can have a new phase of capitalism that is beyond neoliberalism. But the interesting thing is that nobody is really talking at this moment about such a new phase of capitalism going beyond neoliberalism. They think that it is possible for nation-states to intervene and stabilise the system despite finance being globalised. But that we have seen is really not possible. They are not reckoning with that impossibility and therefore they are simply harking back to a revival of Keynesianism.

That for instance is what Joe Biden was trying to do, harking back to a revival of Keynesianism. But Keynesianism becomes untenable because it is predicated on active state intervention; if the state remains a nation-state, while finance is globalised then the state has to bow before the dictates of finance. If it does something which globalized finance does not like, then finance will just flow out of the country precipitating a financial crisis, which is exactly what happened in Britain.

When Liz Truss proposed to increase the fiscal deficit, there was a fall in the Pound Sterling. And why was the Pound Sterling falling? Because finance was moving out of the British Economy. That happened for a very short time, but you can see the trend. You can see the connections. So, to come back to the question you raised, I believe that to resolve the crisis you have to go beyond neoliberal capitalism. To go beyond neoliberal capitalism, which is the latest phase of capitalism we have had, you really have to go beyond capitalism.

You don't of course do that immediately, but, what you do is to have a set of transitional measures. For instance, you have to control capital flows; if you control capital flows then you will have to control trade flows as well, for otherwise you cannot meet a trade deficit;and so on. You have to control several things, and in particular control financial flows in order to acquire a degree of autonomy for the nation-state. If financial flows are controlled, then the nation-state doesn't have to worry about finance flowing out, and has therefore greater elbow room for intervening in the economy.

But any agenda of state intervention, by introducing capital controls, will not be backed by the corporates; state intervention therefore has to be supported by the working people in a country like ours: the peasants, the workers, the agricultural labourers, the petty producers, the fishermen, the craftsmen, and so on. And you can enlist their support only on the basis of a welfare agenda, a welfare agenda financed by taxing the rich.

I have been arguing for some time for such an agenda, financed through a combination of wealth taxation and inheritance taxation. A 2% wealth tax and a 33% inheritance tax imposed only on the top 1% of the population, can generate enough resources for the state to be able to finance five fundamental universal economic rights: a right to food, a right to employment, a right to free healthcare through a National Health Service, a right to free education at least up to the higher secondary level, and a right to a living old-age pensionand disability benefits.

Any such plan of taxing the rich will be opposed by the capitalists. And if they do not like it, then they may not carry out any investment. And if they go on an investment strike, the state would have to revive the public sector. So any welfare measures of this sort would actually require to be sustained by adopting further and further measures, the net result of which would be a move towards socialism. That's what I believe.

Editor: Thank you so much for that answer, sir. My question was, in evaluating rising oil prices, you had mentioned the fact that corporate greed has been the approximate factor behind the current upsurge in inflation in metropolitan capitalist countries. So in what form does this corporate greed induced inflation manifest in the Indian scenario?

Prof. Prabhat Patnaik: Well, when I said that inflation was really a result of corporate greed, what I meant was that corporates started raising their profit margins, and therefore prices, in anticipation of shortages.

This is an argument which has been put forward by a number of American Economists. Michael Hudson, for one, has been arguing this for quite some time. His argument is that in the crucial sectors where price rises have been significant, that is food and oil, there have been significant increases in the profit margins. This has been true even in Britain. In Britain, there was such a significant increase in the profit margins of the oil companies that even the liberal Democratic Party, which is not necessarily a particularly left-wing party, had demanded that there should be a windfall tax applied to the British oil multinationals.

But the thing is that, in the advanced capitalist world, inflation has not been because of scarcities per se, but because in anticipation of scarcities profit margins have been jacked up by monopoly companies or oligopolistic corporations.

So, that's what I meant by corporate greed. Now, I don't believe that Indian inflation is because of Indian corporate greed, American inflation because of American corporate greed. I don't have that in mind. What I have in mind is something else.

If you have inflation, which has really accelerated in the United States, what does the Federal Reserve do? It raises the interest rate, which it has been doing for some time. When the Federal Reserve raises the interest rate, you find that finance gets sucked out from all over the world to move to the United States, to move to dollars. That's why every currency in the world is really depreciating, other than the ruble, which has actually climbed up, vis-a-vis the dollar. Every other currency is depreciating vis-a-vis the dollar, including the rupee. The rupee has depreciated vis-a-vis the dollar by as much as 10% between February and December. Now if you have depreciation, then you have a rise in the prices of imported goods, including oil, which then get passed on because these are universal intermediaries.

The government could, of course, reduce its own taxes. But if the government's taxes remain unchanged and there's a rise in the cost of oil, then that gives rise to inflation across the board. So corporate greed is the starting point of this phenomenon. Then inflation gets generalised all over the world, through a process, which is complex; and that process is the sucking in of finance from all over the world to the United States and to dollar and dollar denominated assets, which gives rise to a downward movement of all currencies relative to the dollar.

The euro vis-a-vis the dollar, the pound sterling vis-a-vis the dollar, the rupee vis-à-vis the dollar, they all have been falling, and every such fall worsens the inflationary pressures. So, the mechanism must be really looked at. The depreciation in the rupee, which I said is more than 10% since February, has occurred, even though 100 billion dollars' worth of our foreign exchange reserves have been spent by the Reserve Bank of India to stabilise the rupee and even though our own interest rates have been rising in response to the rise in American interest rates to prevent the fall of the rupee; but even so the rupee has fallen by more than 10%.

Editor: Thank you for your answer. Sir, we had another question, what are the lingering effects of colonial drain that can still be felt in India today?

Prof. Prabhat Patnaik: The lingering effects of colonial drain, like the lingering effects of the de-industrialization of the colonial period, take the form of acute poverty and unemployment of the people. Why is it that suddenly you find that there is this extraordinary, massive increase in poverty in the colonial period. You know, Professor Shireen Moosvi of Aligarh Muslim University made an estimate. She compared the per capita income in India from Abul Fazal's data for 1575 with the per capita income of British India in 1910 from Sivasubramanium's estimates. She found that in 1910, the per capita income of India in real terms was lower than in 1575. Now, how is it possible? Obviously, it's possible because of the colonial nature of the Indian economy.

Colonialism, therefore, impacted the economy through both, the de-industrialization that came about and caused massive unemployment, and the drain which basically devastated the peasantry. The tax revenue extracted from the peasants financed our export surplus, which basically means that the export surpluses were taken away from the peasants without the peasants being paid for them at all. The squeeze on the peasants was of course much greater than just the export surplus because they also paid for the internally-spent administrative expenses. All this basically kept the peasantry in a state of acute distress for a very long period, and continues to do so even now, notwithstanding 75 years of independence.

So the impact of the colonial drain has to be seen not in terms of specific features, but in terms of the general underdevelopment of societies like ours. Long ago, Paul Baran in his book *The Political Economy of Growth* had argued that the only country which actually developed from Asia was Japan because it was not colonised.

Now, of course you may say that China has broken this barrier. But China has broken this barrier because it has a different social system. But if you look within the confines of capitalism, truly speaking, no third world country that was colonised has really developed to the ranks of advanced countries like Japan. And I think the reason is that because of the colonial experience these countries have got into a certain kind of economic structure from which it's very difficult to break out. You have huge labour reserves. If you have a huge labour reserve, then you must have a substantial rate of growth of employment in order to absorb these labour reserves.

The rate of growth of employment is nothing else but the rate of growth of GDP minus the rate of growth of labour productivity. Now, what you find in the recent neoliberal period is that the rate of GDP growth has accelerated and everybody says, "Oh, how good". But alongside it, the rate of growth of labour productivity has increased so rapidly that the employment growth rate now is much less than it was before the introduction of the neoliberal regime. Employment growth rate now is about 1% per annum, while in the period of the fifties, sixties and seventies it was about 2% per annum. 2% was still very low relative to the population growth to absorb the big labour reserve that we had inherited from the colonial period. But on the other hand 2% was higher than 1%, which is now the rate of growth of employment. So even the natural growth of the workforce now, has not been able to be absorbed into gainful employment, because of which poverty continues. In fact, it becomes accentuated as unemployment increases.

Unemployment increases, not in the sense that the number of unemployed people increases relative to the population, but in the sense that the same amount of work is distributed among more people. So, the impact of the colonial drain has to be looked at as part of the structural characteristics of economies, like ours, which we have inherited from the colonial period and which entail perpetuation of poverty, at least within the kind of social system that we have.

Editor: Thank you. Sir, I have one more question for you. So despite the immense hardship caused by globalisation for working people, there is a de facto endorsement of globalisation and neoliberalism worldwide. How did this get established and how can it be challenged?

Prof. Prabhat Patnaik: This endorsement is really by the middle class. One of the things which globalisation has done is that it has given rise to a substantial improvement in the conditions of the middle class. You look at our own country; look at professors, let alone the large variety of well-paid middle class jobs that have emerged in other spheres. When I first joined JNU in 1973 as an Associate Professor, my basic salary, which was the starting salary for the grade, was Rs.700 per month. Now, I think the starting basic salary of an Associate Professor at a University would be about Rs.50,000 per month. So, the ratio is one to seventy. But when I joined, the procurement price of wheat was Rs.70 per quintal.

Now it has gone up to a little more than Rs.1500 per quintal, so that the ratio here is one to twenty or twenty-five. So even University professors like me are much better off now relative to the working people, i.e. the peasants and the workers, than we were in the early seventies. This phenomenon of middle class affluence under neoliberalism is a worldwide phenomenon.

I told you that workers in advanced countries have had a terrible time during this period of globalisation. There is an economist from what used to be called Yugoslavia in the old days, called Branko Milanovic, who plotted a graph. Along the horizontal axis, he plotted the level of real income in the base year which was in the 1980s; and along the vertical axis he plotted the growth in this level of real income between the base and the terminal year which was three decades after the base year. And he found an elephant shaped graph. In other words the graph goes up, plateaus, then comes down, and then goes up again. The come-down relates to the workers in advanced countries, while the hump in the middle is on account of the middle class in countries like India and China. The middle class elsewhere too has done very well.

Since the middle class populates the media, controls the discourse, and shapes the discussions, there is this widespread impression that the period of globalization has been good for all; but this is not true. You look at India; according to an estimate by Prof. Utsa Patnaik, the proportion of the rural population which does not have access to 2200 calories per person per day was 58% in 1993-94. These are all National Sample Survey figures, and the years referred to are years in which you had large sample surveys by the NSS. Every five years they have a large sample survey. In 2011-12, the 58% had gone up to 68%. It is not surprising that the ranking of India according to the World Hunger Index is well above 100. Similarly when you look at the urban area where 2100 calories used to be accepted as the daily norm by the Planning Commission for defining poverty, it was 57% below this norm in 1993-94 and went up to 65% in 2011-12. Since then, it has gone up even further, so much so that the central government has suppressed the data for 2017-18 and decided not to have such surveys anymore.

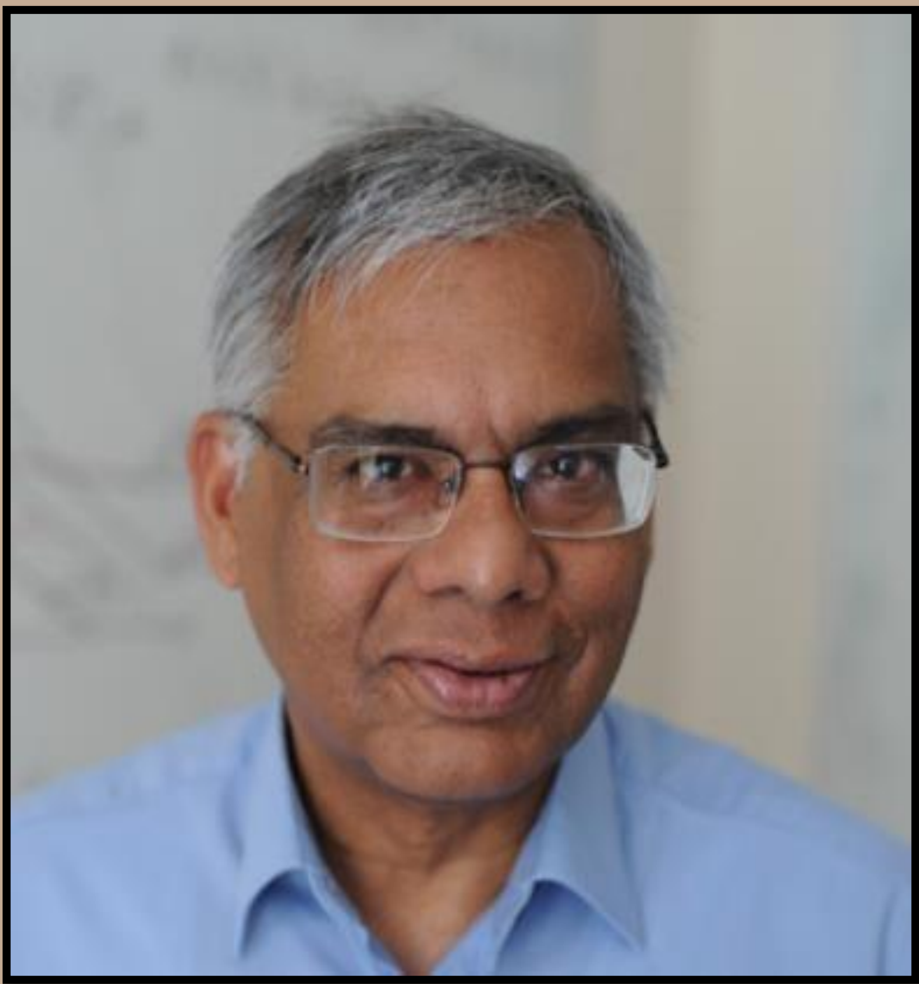
Even during this period, however, what is the narrative? You look at magazines, you look at newspapers, and everybody is talking about how well the country has done. But in reality the extent of hunger has increased in the country. Our government says that these bits of evidence that point to a growth in absolute poverty in the population, are all false and slanderous for the Indian people and the economy. But in fact, the hiatus between the ordinary people on one hand and the middle class and the rich on the other has increased dramatically. That means the narrative which you get about things being wonderful under the neoliberal regime is really a narrative spun by the middle class and backed by institutions like the World Bank and the IMF.

It is not a narrative which the working people subscribe to, but this precisely links with the point I was trying to make earlier, namely that even progressive elements fall victims to this narrative. Within this context the working people get drawn towards neo-fascism which pays lip service to their distress; but it blames this distress on immigrants, on Muslims or on some ethnic minority, and carries forward the neoliberal agenda for the benefit of the corporates. But the working people fall victims to neo-fascism inter alia because of the fact that the progressive elements fall victims to this narrative of neoliberalism’s success.

Editor: Thank you for your answer, sir. We would like to thank you for your time and I think I speak for all of us when I say that we have not only learned a lot, but have been left with a lot to think about.


Aapoorti MH
VEDIKA VIRAJ SAKHARDANDE
SRISHTI MENON
ADITI GUPTA
You
Social Scientist
12:16 PM | Interview with Prof. Prabhat Patnaik

In Conversation with: **Prof. Bhaskar Dutta**



Prof. Bhaskar Dutta is a renowned economist, known for his contribution to the field of game theory and his association with Ashoka University as a Professor of Economics.

Editor: Good evening, sir! Thank you for joining us. It's really an honour to interview you today. Firstly, we'd like to ask you, what made you gravitate towards your current research interests?

Prof. Bhaskar Dutta: My PhD dissertation was on social choice theory—more on the strategic aspects of social choice theory—and when I was doing my PhD, game theory was in its infancy, which says something about my age!

So, basically, when I was doing my masters in Delhi School of Economics, there was no course on game theory. Over time I learnt it on my own. I learnt aspects of game theory which I like, on my own. I've always been interested in strategic aspects of individual behaviour and my dissertation was on strategic voting and voting rules etc.

So, it was sort of a natural transition to game theory, which also deals with individual strategy. And I guess that's about it. My main interest today, as you probably know, is in game theory and applications.

Editor: Thank you so much for answering that.

Editor: Another question we had was one drawback that is inherent from classical utilitarianism is that a world with a very large number of individuals whose welfare levels are barely above zero could have a larger sum total welfare, and therefore they would count as better off than a world which has a smaller number of individuals who are very well-off. So in a world like this, what role does the multidimensional measurement of welfare play in resolving this paradox?

Prof. Bhaskar Dutta: I'll break up my answer into two parts. One is, as you know, classical utilitarianism conventionally has been applied on a fixed population. Your question was whether classical utilitarianismcan be compared or used across different population sizes, and the answer is well, yes and no. No, because of the reason you're mentioning. But that is not the context in which initial discussions of classical utilitarianism took place; that was in the context of a fixed population size.

The sum of the utilities of a large number of very poor people may be larger than that of richer individuals, if the latter group has very few people. But this is not a failure of classical utilitarianism since the two groups do not have the same number of people.

This is not to say that utilitarianism cannot be applied across variable populations; In fact, there has been a lot of work on it. There is, if I'm not mistaken, a book on how utilitarianism can be applied to variable population sizes. I don't remember the title of the book, but I remember the names of the authors who are Charles Blackorby and David Donaldson, among others and they have a book on variable population and utilitarianism.

And there's been a lot of work on this issue. For instance, one possibility is to use average utilitarianism. So, if you have again a large number of individuals with low levels of utility thatwould translate into low average utility. But if you have a small number of individuals with large incomes or large utilities, then the average would be higher.

You also mentioned multidimensional measurement of welfare. There is discussion about this over timestarting with the very influential work of Amartya Sen. The idea was that income or utility, income in particular, is not the only measure of individual well-being. You need to consider a basket of criteria, for instance, health, education and also of course income. So, an individual's standard of living would depend upon all these different criteria. So when you're measuring welfare then you have to take these different criteria into account and hence multidimensional measurement is the right way to go.

Editor: I just had a follow up question to ask this. In recent times, with the climate crisis, do you feel like there needs to be an induction of measures such as the susceptibility to climate change, etc.? Or, and even just like, more inclusion of people at the margins and consideration of how there can be differential impact of the coming crises on these people into the calculation of welfare measurements.

Prof. Bhaskar Dutta: I don't have a complete answer to this. But, to some extent this goes in the direction of multi-dimensional measurement. You need to look at, of course, climate change as more of a long-term perspective in the sense that we are worried about climate change today because of what can happen in the future. But if we take into account the welfare of future generations, then the issues of climate change can become very pertinent. Those who live in Delhi know that it also has an effect on current health for instance, but discussions on climate change have been conducted more in the context of the future well-being.

Does that sort of answer your question?

Editor: Yeah, it does.

Editor: You have stated that exchanging favours can lead to socially and economically desirable networks in one of the papers. So, do you think that this is the basis of all international organizations or coalitions or unions? And at what point do you think that the favours could be considered returned and would it lead to the disintegration of these coalitions?

Prof. Bhaskar Dutta: The paper that you are talking about was in a very specific context - for instance, in rural societies where contracts may not be written down or enforced. So, reciprocity plays a big role in such circumstances because in a community, you may give a loan to an individual or your neighbor today because you know that in future when you need something, you will get a favour in return.

And here when I say this, I'm taking a very sort of narrow neoclassical point of view, that people are not idealistic or they don't give favours, just out of a sense of goodwill, but because they expect something in return. That happens sometimes and at other times it doesn't. In the context of international organizations, of course, if you look at, for instance, countries. I think when one country strikes an alliance with another country, it essentially does so because of its own self-interest. So self- interest, I think, is a primary driver, if you will, of individual countries' behaviour. Then, if you give a favour to another country it's because you expect it back. But, we wrote the paper more in the context of rural societies where formal contracts cannot be written down.

Editor: Sir, I just have one more follow up. So, as you said that you've stated that in the context of rural societies, do you think that the social atmosphere there is a huge factor where people are getting into oral contracts?

Prof. Bhaskar Dutta: Rural societies are also hierarchical and when there is this hierarchy I don't think this favour exchange works very well. If you're on the top of the hierarchy and if you give a favour which typically happens not very often, that's not because you expect something in return. So I think you need to interpret that piece of work in the context of relationships among equals.

Editor: In your opinion, in the presence of several other schools of thought such as neoclassical or classical economics, how did game theory formalise itself as one of the most credible fields in economics?

Prof. Bhaskar Dutta: I think Game Theory is more a part of neoclassical economics than classical economics. So what are the basic driving forces of neoclassical economics? That individuals are maximisers of their own good. They have an objective function and depending on the context it could be utility or income and they want to maximise that. This definition of rationality is very stark. Game theory also assumes that individuals are rational and try to maximise their goals, or in terms of game theory their playoffs. How would you define payoffs? It could include consideration for others as well. Once you define the game and set strategies for each player, then players choose actions, and the collection of actions gives rise to some payoffs. And the individual chooses their strategy to try to maximise their payoffs based on conjecture on what others are going to do. Most applications of game theory are in the context of small numbers, where individual behaviour matters, and not in the context of competitive markets where there are lots of individuals. The definition of a competitive market is that there is a market price and an individual can buy and sell whatever he or she wants. My actionhas no consequence on the market prices. Game theory considers small numbers and there is strategic interaction.

Editor: Sir, I had a follow-up, you mentioned that when you were studying game theory it was not as formalised as it is right now and it is a relatively new field that has been popularised in economics. Doyou see any other fields like this presently that will become as popularised and formalised as game theory is today?

Prof. Bhaskar Dutta: I don't know about the formalised part but certainly, behavioural economics is a very established field now. Partly because in neoclassical economics and game theory we make veryextreme assumptions to the extent to which individuals maximise their own well-being or pay off. There have been lots of laboratory experiments where the conclusions that you get from a game theoretic model are not borne out. As a result of that, many people have tried to develop formal models with different behavioural assumptions since maximising behaviour doesn't fit in all contexts. Therefore, behavioural economics is a rising field in formal theoretical economics.

Editor: Another question we had was related to mechanism design, there is an institutional bound on international organizations to treat countries "fairly" or "similarly", restricting the scope and impact of climate agreements, given the personalization of costs and benefits that is often required to induce desired behaviour?

Prof. Bhaskar Dutta: Can you be a bit more specific?

Interviewer: For example, a given agreement has a fixed set of things a country has to abide by and the range of fines for not abiding is limited. Similarly, the benefits that can be given for abiding are limited because there is general agreement that countries should be treated fairly. Do you feel like thisrestricts the scope of climate agreements sort of conditions for reducing emissions? Is there a greater degree of personalisation of agreement needed given the variability of costs?

Prof. Bhaskar Dutta: My understanding of negotiations on climate change in an international forum is that they have not been very successful. The main reason for this is not because countries should be treated fairly but because what is fair is not clear. For instance, developing countries would argue for a certain level of emission per head of population whereas the US would say, let's fix the total level irrespective of population size. That's where there has been a failure of agreements. With India and China being large, fixing a country-specific level of emissions becomes costly for India and China as that would mean emissions per head of population would be very small. The problem with climate change negotiations is that we don't know what's fair. Is the same level of emission fair or is the same level of per capita emission fair? A context where populations differ across countries leads to different recommendations and policy prescriptions. But this is an area where I probably know as much as you know!

Editor: Lastly, we would just like to ask you; since you mentioned yourself that when you were beginning to be interested in game theory most of what you learned about the subject, you learnt it on your own through readings, so what advice would you give to undergraduate students like us who are just beginning to be interested in the subject and any research tips that you have about how students can approach their research interests and approach complex topics like modelling behaviours in game theory.

Prof. Bhaskar Dutta: I think the first and most important piece of advice that I would give you is that you should follow your own interest as far as possible. Some people would like to be theorists; others would like to do empirical work; some would want to specialize in climate change and environment, others in trade; I'm just taking up examples. I think it is important to be not completely driven by what the market wants. So there are some topics and fields that are fashionable and often younger people try to follow the fashion. Obviously, you can't ignore it completely, whatever the hot topic is currently. But everyone has different tastes, all of us have different preferences and it is important to follow what you like. Read up on topics or subjects that you feel particularly interested in, especially at the undergraduate level. You know you're going to enter the job market many years later. So you have time to think of this is what will give me a good job. You have lots of time for that. At this stage read up on what you like, whichever field you enjoy reading about.

Editor: Thank you for that, sir.

Editor: Could you tell us about applications of game theory outside the field of economics?

Prof. Bhaskar Dutta: Game theory is not just applied in economics; it is applied across a wide spectrum of subjects. This year, I am going to teach an optional course at Ashoka University called Game theory and Applications where we would discuss applications in biology, computer science, political science and of course also economics. Game Theory provides a very powerful set of tools. Sofor example in biology–evolutionary biology. Have you come across the name of John Maynard Smith? He applied very simple game theoretic models to explain evolutionary biology and aspects of it. In Political science of course, the so-called hotelling model of political competition, that's a straightforward application of game theory. Computer science for instance, again is a huge field of applications of Game Theory. Let me give you one fascinating example. On Google you must have entered search words. Suppose you want to buy something, you enter let's say—pen, then you get a whole set of links, about shops and about the types of pens, etc. Some would be at the top, some would be lower down. So have you ever wondered how Google forms this list? It's actually based on online real-time auctions. Because obviously if your product is on top of the list then more potential customers are going to go to your website. So, being higher up is more valuable and you are willing to pay Google to be on the top of the list. So there is actually a real-time auction being performed in order for Google to make the list. Now all these actions, how are they designed? In fact, that is a very current topic in the field of research in game theory. So web search, all kinds of different applications in Computer science can be related to game theory.

Editor: That was highly fascinating, sir! Thank you for sparing time for us today!


VEDIKA VIRAJ SAKHARDANDE
Aapoorti MH
ADITI GUPTA
You
4:29 PM | Interview with Prof. Bhaskar Dutta

MEET THE TEAM

TEAM AAPOORTI

Editors-in-Chief: Ashmita Chowdhury and Riya Kalia
Deputy Editors: Vedika Sakhardande, Srishti Menon and Aditi Gupta
Junior Editors: Ekanshi Makheja, Gitika Arora and Heau Mishr

Arthashastra, the Economics Society of Miranda House