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# ARTHA BEEKSHAN

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**BANGIYA ARTHANITI PARISHAD**
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**Artha Beekshan, Volume 30, No. 2 & 3**

Publication of *Artha Beekshan*, the quarterly referred journal of Bangiya Arthaniti Parishad, that is, the Bengal Economic Association, is one of the most important academic activities of the Association. The present volume, Volume 30, No.2 &3 of the Journal, is a collection of selected papers written by scholars in the discipline of Economics and allied subjects. We are thankful to the authors and members who have helped in one way or other in the preparation of this volume. Because of the difficulties and disruptions caused by the intervention of the Pandemic in between, we have been compelled to bring out the issue as a combined one.

The publication of this issue of Artha Beekshan is helped by grant from **ICSSR , New Delhi .** I would like to extend my whole-hearted thanks to the Editorial team, the Publisher, and all who have helped in the publication process, and especially the office bearers of Bangiya Arthaniti Parishad for their kind endeavours to make this issue of Artha Beekshan viable and Kolkata Mudran for bringing out the present issue.

**Editor in Chief**

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# Decision Making Under Ambiguity

**Somdeb Lahiri [1]**

**Abstract**

We provide a solution for decision making under ambiguity which is similar to the equilibrium concept for bi-matrix games.

**Keywords: risk, ambiguity, optimal, consistent**

**JEL Classification Code: D81.**

## I. Introduction

We consider a decision maker (DM) who is required to choose a strategy (act) from a set of strategies, the consequences of (or pay-off from) which to the DM, depends on the state of nature chosen from a set of states of nature, by an entity- either abstract or concrete- called chance. The important point to note is that the DM has no role to play in the choice of the state of nature, beyond what "chance" voluntarily chooses to take into consider into consideration about the DM. Our framework of analysis is a special case of the considerably more abstract setting in Gilboa and Schmeidler (1989). The solution concept suggested by Gilboa and Schmeidler (1989) is the maximin solution, where "chance" and the DM are assumed to be involved in a totally antagonistic or adversarial relationship. This means that given any strategy and any state of nature, the sum of the pay-offs of the DM and chance is a constant. Their paper is concerned with axiomatic characterization of the maximin solution in a considerably more abstract setting than we consider here. In this paper we are interested in a "balanced" application of mathematical technology to decision analysis, as (is evident) in Mote and Madhavan (2016).

The solution concept we propose is based on the premise, that it may be possible for the DM to have more information about the pay-offs that chance receives, so that it may be more reasonable to assume that "chance" may wish to choose states of nature in a manner that is not necessarily antagonistic. That "chance" is nature (or "Nature" if you wish) may be a reasonable assumption for an average individual if the states of nature that the DM is concerned with are the possible weather conditions on a particular day, but not considerably more reasonable than assuming that "chance" is an average profit-maximiz-

1. Professor, School of Petroleum Management,PD Energy University, Raisan,Gandhinagar - 382 007, Gujarat, India (PDEU);
Email :somdeb.lahiri@gmail.com . This version: September 8, 2021 (15:58 hrs. IST).

ing firm representing firms other than the DM, with a certain unit cost of production that the DM has an approximate guess about, if the DM is itself a profit-maximizing firm in an oligopoly. Or, for that matter if the DM is an investor, it is definitely more reasonable to assume that"chance" represents "market forces" choosing prices of various investment opportunities so as to minimize some function of excess demands, rather than choose strategies purely for the sake of inflicting maximum loss on the DM. Keeping this in mind, we suggest that based on the DM's "conjectures" about the pay-offs accruing to "chance", it is possible that the outcome of the interaction between the DM and chance, is similar to the well-known equilibrium concept for bi-matrix games.In other words, given the conjectures about the pay-offs that chance receives, the DM's problem is to choose a strategy which is the DM's best response against what chance would in turn consider (based on the conjectured pay-offs) to be its best response against the chosen strategy of the decision maker. In Shenoy (1998), it is shown how risk (probabilistic uncertainty) in decision trees can be represented by the concept of information sets as defined for game trees (finite extensive form games). Here we show how the resolution of ambiguity in decision analysis (decision trees) can be done by a slight modification of the concept of equilibrium mixed (behavioral) strategies for bimatrix games. For a lucid discussion on two-person matrix games, one may refer to chapter 20 of Mote and Madhavan (2016) and for both matrix as well as bimatrix games to Stahl (2013). The mathematical complexity of the analysis reported here, never exceeds that in Mote and Madhavan (2016).

Since the pay-offs to chance are merely conjectures due to the DM- perhaps based on reliable information- matters concerning "common knowledge" and private information of other agents, with which non-cooperative game theory has to contend with, often without being able to provide a plausible explanation, are not relevant in our context. To the best of my knowledge, we have a new solution concept for decision making under ambiguity, that appears to be plausible, and we also have a proof of its existence within our realistic framework of analysis. Further, regardless of the generality or otherwise, our proof of existence relies on mathematical models for which there are very well-known algorithms for computing the solution. While this paper is not intended to take a big-leap forward in decision making theory, we hope it does make a minor, relevant and inclusive contribution to the subject, that is well within the reach of economists. In a final section of this paper, we provide an example of decision making under ambiguity, where the kind of solution concept we suggest, can be applied.

From a purely mathematical point of view, this is "old wine in a new bottle". However,for many economists as well as decision (making) theorists, a major problem with game theory is not with its mathematics, but with the bottle that contains the mathematics- to be specific the common knowledge assumption that forms the bedrock of non-cooperative game theory. In game theory, the behavioural assumptionthat each participant (or DM) chooses a best response, is applied to a constellation of strategy (state) contingent payoffs that is assumed to be known to all participants. In principle, knowledge about the strategy dependent pay-offs of a DM, is the private information of the concerned DM. It is difficult to conceptualize frequent occurrences or instances of situations, where so much private information is freely available in the public domain. In our case (as in Gilboa and Schmeidler (1989)), the DM is assumed to have conjectures about the pay-off matrix of chance. The closest parallel that one can come across in received economic theory to this assumption of ours, is that of each agent in the economy having expectations about future prices as in models of temporary general equilibrium. Neither the viability nor the workability of such a model, is affected by the veracity or otherwise of such future price expectations. The additional assumption in game theory that that the conjecture of each DM about the strategy dependent pay-offs of the other DM's are the actual strategy dependent payoffs of the other DM's is akin to assuming "perfect foresight".In our model of decision-making theory, we <u>do not</u> assume that the DM has such prophetic abilities, though it is natural to expect that when the stakes are high, the DM will try to ensure that the conjectures are "as accurate as possible". Having said that, whether that pay-off matrix is right or wrong is a different matter about which we do not speculate in this paper.

## II. The Mathematical Analysis

Consider a DM who is required to choose a strategy from the non-empty finite set $\{x_1,\ldots,x_m\}$ for some positive integer $m \geq 2$, in the presence of uncertainty, which means chance (which may be either an entity or a concept) chooses a situation/state of nature/strategy from the non-empty finite set $\{s_1,\ldots,s_n\}$ for some positive integer $n \geq 2$. The pay-off received by the DM if the pair of strategies chosen is $(x_i, s_j)$ is $a_{ij}$ (a real number).

Let $\Delta^{m-1}$ denote the set of probability distributions on $\{x_1,\ldots,x_m\}$ and $\Delta^{n-1}$ denote the set of probability distributions on $\{s_1,\ldots,s_m\}$. Elements of $\Delta^{m-1}$ denoted by $\alpha$ are called <u>mixed strategies</u> for the DM.

Given a probability distribution p which may either belong to $\Delta^{m-1}$ or $\Delta^{n-1}$, the support of p denoted supp (p) is the set $\{k|\ p_k > 0\}$.

A <u>decision making problem under risk</u>, prespecifies a probability distribution $\beta$ over the states of nature $\{s_1,\ldots,s_n\}$ where for $j \in \{1,\ldots,n\}$, $\beta_j$ is the probability with which state of nature $s_j$ is chosen.

An <u>optimal solution</u> for a decision-making problem under risk given a probability distribution $\beta$ over the states of nature $\{s_1,\ldots,s_n\}$ (where for $j \in \{1,\ldots,n\}$, $\beta_j$ is the probability with which state of nature $s_j$ is chosen) is a mixed strategy $\alpha$ such that supp($\alpha$) $\subset$. $\underset{i\in\{1,\ldots,m\}}{\operatorname{argmax}} \sum_{j=1}^{n} a_{ij}\beta_j$

The above discussion is adequately covered in Gilboa (2011).

The other kind of decision-making problem called decision making problem under ambiguity is one where no probability distribution over the states of nature is pre-specified.

We assume that for a subset J of $\{1,2,\ldots,n\}$, which may be empty and whose complement $J^c$ consists of at least two elements, it is the case that for all $j\in J$, the probability that the state of nature $s_j$ will occur is given and denoted by $\beta_j \in [0,1]$ and further $\sum_{j\in J} \bar{\beta}_j < 1$.

It is this assumption that there are at least two states of nature with unknown and hence a positive aggregate probability of occurrence, that leads to ambiguity.

In such a situation, Gilboa (2011) suggests that it is possible (though not inevitable) that the DM has to conjecture a mixed strategy for the chooser of the state of nature, based on an adversarial relationship between chance and the DM, i.e. the assumption which may be entirely subjective, that pay-off to chance is $-a_{ij}$, if the DM chooses $x_i$ in state of nature $s_j$. Thus,suppose the DM proceeds by assuming the worst-case scenario, where chance adopts a completely antagonistic relation to the DM. Such a pay-off matrix for chance and the following solution concept for the resolution of ambiguity has been suggested by Gilboa and Schmeidler (1989).

A maximin solution for a decision-making problem under ambiguity is a mixed strategy $\alpha$, such that for some probability distribution $\beta$ over the states of nature $\{s_1,\ldots,s_n\}$ with $\beta_j = \bar{\beta}_j$ for all $j\in J$:

(i) $\mathrm{supp}(\alpha) \subset \underset{i\in\{1,\ldots,m\}}{\mathrm{argmax}} \sum_{j=1}^{n} a_{ij}\beta_j$;

(ii) $\mathrm{supp}(\beta)\cap J^c \subset \underset{j\in J^c}{\mathrm{argmin}} \sum_{i=1}^{m} \alpha_i a_{ij}$.

The following theorem is an easy consequence of the more general result that we present as theorem 2 in this paper.

**Theorem 1:** A maximin solution always exists.

To illustrate what amaximin solution implies, we shall attempt an explanation of the "paradox" discussed in Problem 5.15 (page 168) of Gilboa (2011).

An urn contains 90 identical balls, of which 30 are coloured red (R) and the rest are coloured either blue (B) or yellow (Y). A ball is chosen at random (to the extent of the subject of the experiment being convinced it is so) after which and without observing the colour of the chosen ball, the subject is offered to choose one from among the following two uncertain prospects:

**Uncertain Prospect 1 (UP1):** If the ball chosen is red then the subject wins \$1000; otherwise, the subject wins nothing.

**Uncertain Prospect 2 (UP2):** If the ball chosen is blue then the subject wins \$1000; otherwise, the subject wins nothing.

The decision of the subject is recorded and the chosen ball is returned to the urn in preparation for a second round of randomization.

Once again, a ball is chosen at random after which and without observing the colour of the chosen ball, the subject is offered to choose one from among the following two uncertain prospects:

**Uncertain Prospect 3 (UP3):** If the ball chosen is "not red" then the subject wins \$1000; otherwise, the subject wins nothing.

**Uncertain Prospect 4 (UP3):** If the ball chosen is "not blue" then the subject wins \$1000; otherwise, the subject wins nothing.

Once again, the decision of the subject is recorded.

After several repetitions of this and thought experiments, it was found that a very large proportion of the subjects chose UP1 from among the first two uncertain prospects and UP3 from among the last two, contradicting expected utility maximizing behaviour.

This paradoxical phenomenon is attributed to "ambiguity aversion" which it indeed is, but can still be explained as a maximin solution by reducing by an infinitesimally small amount the probability of the event causing ambiguity or by increasing by an infinitesimally small amount the probability the event about which there is no ambiguity, in either case beginning with equi-probable states of nature. This is the way "ambiguity aversion" gets incorporated in our model.

Consider the first decision problem, where the realized state of nature can be either red (R) or blue (B) or yellow (Y). Given the information that the probability of the state of nature being R is $\frac{1}{3}$, suppose that the probability of the state of nature being B is $\frac{1}{3} - \varepsilon$ and the probability of the state of nature being Y is $\frac{1}{3} + \varepsilon$. Thus $b = (\frac{1}{3}, \frac{1}{3} - \varepsilon, \frac{1}{3} + \varepsilon)$ for some $0 < \varepsilon < \frac{1}{3}$.

In the first choice problem, the two strategies available to the subject are UP1 and UP2.

The pay-off matrix A in this case is the 2×3 matrix:

$$A = \begin{bmatrix} 1000 & 0 & 0 \\ 0 & 1000 & 0 \end{bmatrix}.$$

It is easily verified that a = (1,0) is a strong Ellsberg solution for b = ($\frac{1}{3}$, $\frac{1}{3}$ - ε, $\frac{1}{3}$ + ε), confirming the observations of the first experiment.

In the second choice problem, the two strategies available to the subject are UP3 and UP4.

The new pay-off matrix A in this case is the 2×3 matrix:

$$A = \begin{bmatrix} 0 & 1000 & 1000 \\ 1000 & 0 & 1000 \end{bmatrix}.$$

Given the information that the probability of the state of nature being R is $\frac{1}{3}$, suppose that the probability of the state of nature being B is $\frac{1}{3}$ + ε and the probability of the state of nature being Y is $\frac{1}{3}$ - ε. Thus β = ($\frac{1}{3}$, $\frac{1}{3}$ + ε, $\frac{1}{3}$ - ε) for some 0 <ε< $\frac{1}{3}$.

It is easily verified that α = (1,0) is a maximin solution for β = ($\frac{1}{3}$, $\frac{1}{3}$ + ε, $\frac{1}{3}$ - ε), confirming the observations of the second experiment.

In the above discussion of Problem 5.15 (page 168) of Gilboa (2011), we actually obtained a slightly stronger version of the maximin solution which may be defined as follows.

A strong maximin solution for a decision-making problem under ambiguity is a mixed strategy α, such that for some probability distribution β over the states of nature $\{s_1,\ldots,s_n\}$ with $\beta_j = \bar{\beta}_j$ for all $j \in J$:

$$\text{(iii) } \mathrm{supp}(\alpha) = \underset{i\in\{1,\ldots,m\}}{\mathrm{argmax}} \sum_{j=1}^{n} a_{ij}\beta_j;$$

$$\text{(iv) } \mathrm{supp}(\beta)\cap J^c = \underset{j\in J^c}{\mathrm{argmin}} \sum_{i=1}^{m} \alpha_i a_{ij}.$$

The kind of situation where the pay-off matrix of chance is -A is suggested in this movie: (https://www.mostdangerousman.org/).

So far, we have been concerned with a resolution of ambiguity where the DM was assumed to be extremely risk averse and assumed that "chance" was engaged with the DM in a two-person zero sum game. This is a behavioral assumption made by the DM about chance i.e. that the pay-off matrix of "chance" was -A, and from the stand point of decision theory alone, this particular assumption about the pay-off matrix of chance is as good as any other that can be made about it. If a DM does not need to justify a pessimistic or adversarial attitude towards the unknown, the same DM should not have to justify any other attitude in the presence of ambiguity either. Hence, we propose the following solution concept.

In order to commemorate the fiftieth anniversary of the release of the Pentagon papers and honour the lead character of the movie mentioned above, who in spite of having access to all the privileges that a citizen of a first world country enjoys, risked his life and career and took on the fight against pain, suffering and indignity of the citizens of third world countries, as his lifelong cause, we call the following solution to a decision-making problem under ambiguity the Ellsberg solution.

An Ellsberg solution based on (**a pay-off matrix**) B (**for chance**) for a decision-making problem under ambiguity is a mixed strategy $\alpha$, such that for some probability distribution $\beta$ over the states of nature $\{s_1,\ldots,s_n\}$ with $\beta_j = \bar{\beta}_{jj}$ for all $j \in J$:

(i) $\mathrm{supp}(\alpha) \subset \underset{i \in \{1,\ldots,m\}}{\mathrm{argmax}} \sum_{j=1}^{n} a_{ij}\beta_j$;

(ii) $\mathrm{supp}(\beta) \cap J^c \subset \underset{j \in J^c}{\mathrm{argmax}} \sum_{i=1}^{m} \alpha_i b_{ij}$.

**Note:** The pay-off matrix B is purely a conjecture due to the DM. Hence as already mentioned in the introduction, matters concerning "common knowledge" and private information of other agents, with which non-cooperative game theory has to contend with, often without being able to provide a plausible explanation, are not relevant in our context.

The proof of the first part of the following theorem is based on a very well-known result available in Lahiri (2021). The second part is like an "integrability" or "inverse optimality" result for chance.

**Theorem 2:** (i) Given any pay-off matrix B, there exists an Ellsberg solution based on B.

(ii) Conversely, given any mixed strategy $\alpha$ and probability distribution $\beta$ over the states of nature $\{s_1,\ldots,s_n\}$ with $\beta_j = \bar{\beta}_j$ for all $j \in J$, there exists a pay-off matrix B for chance such that $\mathrm{supp}(\beta) \cap J^\chi \subset \underset{j \in J^c}{\mathrm{argmax}} \sum_{i=1}^{m} \alpha_i b_{ij}$.

**Proof:** (i) It is easy to see that $\alpha$ is an Ellsberg solution if and only if for all $j \in J^c$, there exists $\theta_\varphi \in [0,1]$ with $\sum_{j \in J^c} \theta_j = 1$:

(i) $\text{supp}(\alpha) \subset \underset{i \in \{1,\dots,m\}}{\text{argmax}} [\sum_{j \in J^c} c_{ij}\theta_j + \sum_{j \in J} a_{ij}\overline{\beta}_j]$

(ii) $\text{supp}(\theta) \subset \underset{j \in J^c}{\text{argmax}} \sum_{i=1}^{m} \alpha_i b_{ij}$,

where $c_{ij} = (1-\sum_{j \in J} \overline{\beta}_j) a_{ij}$ for all $i = 1,\dots,m$ and $j \in J^c$.

Hence $\alpha$ is an Ellsberg solution if and only if there exists for all $j \in J^c$, $\theta_\varphi \in [0,1]$ with $\sum_{j \in J^c} \theta_j = 1$:

(i) $\text{supp}(\alpha) \subset \underset{i \in \{1,\dots,m\}}{\text{argmax}} \sum_{j \in J^c} d_{ij}\theta_j$

(ii) $\text{supp}(\theta) \subset \underset{j \in J^c}{\text{argmax}} \sum_{i=1}^{m} \alpha_i b_{ij}$,

where $d_{ij} = c_{ij} + \sum_{j \in J} a_{ij}\overline{\beta}_j = (1-\sum_{j \in J} \overline{\beta}_j) a_{ij} + \sum_{j \in J} a_{ij}\overline{\beta}_j$, for all $i = 1,\dots,m$ and $j \in J^c$.

The existence of a mixed strategy $\alpha$ and $\theta_\varphi \in [0,1]$ for all $j \in J^c$ with $\sum_{j \in J^c} \theta_j = 1$, such that:

(i) $\text{supp}(\alpha) \subset \underset{i \in \{1,\dots,m\}}{\text{argmax}} \sum_{j \in J^c} d_{ij}\theta_j$

(ii) $\text{supp}(\theta) \subset \underset{j \in J^c}{\text{argmax}} \sum_{i=1}^{m} \alpha_i b_{ij}$,

where $d_{ij} = c_{ij} + \sum_{j \in J} a_{ij}\overline{\beta}_j = (1-\sum_{j \in J} \overline{\beta}_j) a_{ij} + \sum_{j \in J} a_{ij}\overline{\beta}_j$, for all $i = 1,\dots,m$ and $j \in J^c$.

follows fromNash's Theorem (page 137, Stahl (2013)).

Let $\beta_j = \theta_j(1-\sum_{j \in J} \overline{\beta}_j)$ for $j \in J^c$, to obtain the desired result.

(ii) To prove the converse, note that since $\alpha$ is a mixed strategy, supp ($\alpha$) $\neq\phi$. Without loss of generality suppose $1\in$supp ($\alpha$).

Let B be the m×n matrix with $b_{1j} = \frac{1}{\alpha_1}$ for all $j\in supp(\beta)\cap J^c$ and $b_{ij} = 0$, otherwise.

Then, $\sum_{i=1}^{m}\alpha_i b_{ij} = 1$, if $j\in supp(\beta)\cap J^c$ and $\sum_{i=1}^{m}\alpha_i b_{ij} = 0$, if $j\notin$

$supp(\beta)\cap J^c$. Thus, $supp(\beta)\cap J^c = \underset{j\in J^c}{\operatorname{argmax}}\sum_{i=1}^{m}\alpha_i b_{ij}$ as desired. Q.E.D.

**Note:** Part (ii) of theorem 2 has important consequences. It implies that the Ellsberg solution does not impose any sort of stringent behavioural restriction on chance. Thus for instance suppose that the decision maker conjectures that B is the pay-off matrix of chance and further that chance is extremely risk averse so that given B chance chooses a probability distribution $\beta$ over the states of nature $\{s_1,\ldots,s_n\}$ with $\beta_j = \overline{\beta}_j$ for all $j\in J$ such that for some $\gamma\in\Delta^{m-1}$

(i) $supp(\beta)\cap J^c \subset \underset{j\in J^c}{\operatorname{argmax}}\sum_{i=1}^{m}\gamma_i b_{ij}$;

(ii) $supp(\gamma) \subset \underset{i\in\{1,\ldots,m\}}{\operatorname{argmin}}\sum_{j=1}^{n} b_{ij}\beta_j$.

Thus, chance chooses a "maximin" strategy given its pay-off matrix B.

Let $\alpha\in\Delta^{m-1}$ satisfy $supp(\alpha) \subset \underset{i\in\{1,\ldots,m\}}{\operatorname{argmax}}\sum_{j=1}^{n} a_{ij}\beta_j$. Then part (ii) of

theorem 2 says that there exists a pay-off matrix F for chance such that $\alpha$ is an "Ells

berg solution based on" F and $supp(\beta)\cap J^c \subset \underset{j\in J^c}{\operatorname{argmax}}\sum_{i=1}^{m}\alpha_i f_{ij}$.

Hence our solution concept is quite flexible.

To illustrate what an Ellsberg solution implies in the context of the "paradox" discussed in Problem 5.15 (page 168) of Gilboa (2011), we need interpret the concept of a paradox from a different perspective. A paradox in the social and decision sciences does not mean that observed behaviour needs to contradict a theoretical premise invariably; it is enough if such paradoxical behaviour is observed a large number of times. In fact, that would be the correct and (very likely) intended interpretation of the “paradox” discussed in Problem 5.15 (page 168) of Gilboa (2011). If that be the case, it would be more appropriate to interpret a mixed strategy as a vector of relative frequencies with which each strategy is chosen.

With that said, suppose the pay-off matrix B corresponding to A = $\begin{bmatrix} 1000 & 0 & 0 \\ 0 & 1000 & 0 \end{bmatrix}$ is given by B = $\begin{bmatrix} 0 & x & 0 \\ 0 & y & 0 \end{bmatrix}$, with y <0 < x, x < -y and $\beta_1 = \frac{1}{3}$, $\beta_2 = \frac{1}{3}$, $\beta_3 = \frac{1}{3}$. Then $\alpha_1 x + (1-\alpha_1)y = 0$ implies $\frac{\alpha_1}{(1-\alpha_1)} = \frac{-y}{x} > 1$. Thus, $\alpha_1 > \alpha_2$ and so at this Ellsberg solution the relative frequency with which UP1 is chosen is greater than UP2.

The exactly same pay-off matrix B, the same α and β leads to an Ellsberg solution when A = $\begin{bmatrix} 0 & 1000 & 1000 \\ 1000 & 0 & 1000 \end{bmatrix}$.

**III. An example to illustrate the applicability of the Ellsberg solution for decision making under ambiguity**

Consider a monopolistically competitive market for a branded product (a differentiated oligopoly) such as cola or salted biscuits. The different brands of such a product are usually similar- both by way of quality as well as price. However, brand loyalty allows for some flexibility in setting the price of any brand. A DM in such a context is a profit maximising firm which is manufacturing a particular brand of the product. What we are concerned with here is the pricing decision of the DM. In order to make the example realistic, we assume that the number of brands in the market are not too many- say 2 to 4 - so that the pricing decision of the DM has a perceptible influence on the profits of the other brands.

The DM can choose between one of three strategies: raising the price (H), lowering the price (L) or continuing with the same price (M). The profit of the DM in response to any of the three strategies depends on the overall reaction of other brands of the product is, which may be raising the price (H), lowering the price (L) or continuing with the same price (M). While the DM cannot predict strategies, the economic situation is such that it has good reason to believe that there is 50% possibility that the “(a hypothetical) representative firm of other brands in the market for the product”-which we refer to here as <u>chance</u>, will choose M, i.e. continue with the existing price. What the DM has no clue about are the probabilities with which chance may choose H or L. This is a typical decision-making problem under ambiguity that occurs very frequently.

Let A denote the pay-off matrix of the DM with H = 1, M = 2 and L = 3 for both the DM as well as chance.

Given $b_1$, $b_3 \geq 0$ with $b_1 + b_3 = \frac{1}{2}$, the DM will be maximizing its expected pay-off by choosing any strategy which belongs to $\underset{i\in\{1,2,3\}}{argmax}\left[\beta_1 a_{i1} + \frac{1}{2} a_{i2} + \beta_3 a_{i3}\right]$. Since $\beta_1$ and $\beta_3$ are unknown, the problem for the DM is to try and guess what those probabilities are. The Ellsberg solution suggests one such very general method of doing so.

In this method, the DM conjectures a pay-off matrix B for a representative rival brand, where $b_{ij}$ is the profit that chance (the representative rival brand) will earn as per the DM's conjecture if the DM chooses its $i^{th}$ strategy and chance chooses its $j^{th}$ strategy. Further the DM hypothesises the same strategic behavioural response for chance as it does for itself, i.e. chance will choose a state of nature (pricing strategy) that is a best response against the DM's strategy- which is unknown to chance, but which chance can assign probabilities to. Since as per the DM's information, there is only a 50% probability that chance will choose its $2^{nd}$ strategy (state of nature), i.e. M, it has to allow for the positive probability of either the first (H) or the third (L) strategy being chosen by chance.

Thus, if chance assigns a probability distribution (of occurrence) α to the strategies of the DM, then according to the DM chance will be maximizing its conditional expected pay-off by choosing a strategy from {1,3} by choosing any strategy which belongs to $\underset{j\in\{1,3\}}{\mathrm{argmax}}[\alpha_1 b_{1j} + \alpha_2 b_{2j} + \alpha_3 b_{3j}]$.

Whether $\alpha_1 a_{12} + \alpha_2 a_{22} + \alpha_3 a_{33}$ is greater than $\max_{j\in\{1,3\}}[\alpha_1 a_{1j} + \alpha_2 a_{2j} + \alpha_3 a_{3j}]$ or not is of no interest to the DM, since the DM is not interested in knowing what the expected profit maximizing strategy of chance is. The DM is interested in chance only to the extent of knowing how chance assigns 50% probability between H and L and hence which of the two strategies gives chance a higher expected profit. In fact the second column of B is irrelevant as far as the DM is concerned.

Thus the DM's problem reduces to finding $\alpha, \beta \in \Delta^2$ with $\beta_2 = \frac{1}{2}$, such that the DM selects an expected pay-off maximizing strategy from $\underset{i\in\{1,2,3\}}{argmax}\left[\beta_1 a_{i1} + \frac{1}{2} a_{i2} + \beta_3 a_{i3}\right]$ and chance selects an expected pay-off maximizing strategy conditional on it belonging to {1,3} from $\underset{j\in\{1,3\}}{\mathrm{argmax}}[\alpha_1 a_{1j} + \alpha_2 a_{2j} + \alpha_3 a_{j3}]$. This naturally requires assigning positive probabilities only to components of $\alpha$ which are a subset of $\underset{i\in\{1,2,3\}}{argmax}\left[\beta_1 a_{i1} + \frac{1}{2} a_{i2} + \beta_3 a_{i3}\right]$ and assigning positive probabilities only to components of $\beta$ which are a subset of $\underset{j\in\{1,3\}}{\text{argmax}}[\alpha_1 b_{1j} + \alpha_2 b_{2j} + \alpha_3 b_{j3}]$.

For instance, suppose the first row of A is (100, 125, 75), the second row is (100, 90, 80) and the third row is (150, 95, 70).

Suppose the DM conjectures that the pay-off matrix of chance is the transpose of its own pay-off matrix, i.e. $B = A^T$.

Given any $\beta_1 \in [0, \frac{1}{2}]$, the expected pay-off to the DM from its first strategy is $25\beta_1 + 100$, the expected pay-off to the DM from its second strategy is $20\beta_1 + 85$, and the expected pay-off to the DM from its third strategy is $80\beta_1 + 82.5$.

Clearly, given the information above the DM will never choose its second strategy. Hence, we can definitely conclude that $\alpha_2 = 0$.

Further, $\alpha_1 = 1$ if and only if $\frac{7}{22} > \beta_1$, $\alpha_1 = 0$ if and only if $\frac{7}{22} < \beta_1$ and $\alpha_1 \in [0, 1]$ if and only if $\beta_1 = \frac{7}{22}$.

As far as chance is concerned the comparison is restricted to its first and third columns with $\alpha_1 \in [0,1]$, $\alpha_2 = 0$ and $\alpha_3 = 1 - \alpha_1$.

The expected pay-off to chance from its first strategy is $25\alpha_1 + 75$ and from its third strategy is $80\alpha_1 + 70$.

Thus, $\beta_1 = \frac{1}{2}$ if and only if $\frac{1}{11} > \alpha_1$, $\beta_1 = 0$ if and only if $\frac{1}{11} < \alpha_1$ and $\beta_1 \in [0, \frac{1}{2}]$ if $\alpha_1 = \frac{1}{11}$.

The above problem has the following three Ellsberg solutions (i) $\alpha = (1,0,0)$, $\beta = (0, \frac{1}{2}, \frac{1}{2})$; (ii) $\alpha = (0,0,1)$, $\beta = (\frac{1}{2}, \frac{1}{2}, 0)$; (iii) $\alpha = (\frac{1}{11}, 0, \frac{10}{11})$, $\beta = (\frac{7}{22}, \frac{1}{2}, \frac{15}{22})$.

In our context the third solution seems to be the most reasonable, since assigning zero probability to the event that the prices (or price index) of other brands are raised or zero probability to the event that the prices (or price index) of other brands are lowered would be contrary to the spirit of decision making under ambiguity. It turns out that with such beliefs about the states of nature, the DM would be maximising expected profit, by either raising its price or by lowering its price. In either case, the expected profits are the same. However, it would not hold on to the current price, since then expected profits would be lower.

The associated mixed strategy for the DM suggests that, faced with a similar situation sufficiently many times, we are very likely going to see the DM choosing the lower price strategy more often than choosing the higher price strategy.

**Note:** "I don't expect to have a gravestone, but if there were to be one, I would want it to say that I was a member of the anti-war movement on Vietnam, and the anti-nuclear movement."- Daniel Ellsberg (source: https://www.newyorker.com/news/american-chronicles/the-deceit-and-conflict-behind-the-leak-of-the-pentagon-papers). Hence, I have refrained from mentioning him in an academic context (except for the purpose of naming definitions) in this paper, since otherwise, given our rather paltry contribution here, we would be doing a grave dishonour to him, as well as to those colleagues, who have made enormous contribution to areas of academic interest to Ellsberg.

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# India and COVID-19: The Appropriate Method of Economic Management

**Durba Ahamed[1] and Ambar Ghosh[2]**

## Abstract

The objective of this study is to derive a strategy for eliminating COVID-19 through the imposition of lockdown and putting in place a system that would make it possible for the people to survive without coming into contact with one another. In the absence of fully effective vaccines and medicines, the measures mentioned above seem to be the only way of eliminating the disease and they have to be continued with until the disease has stopped spreading. To successfully implement the strategy, the government has to restore the incomes of those who lose their incomes due to the lockdown to their pre-lockdown levels. The study shows that the lockdown gives the government an opportunity to increase its investment in the essential sector manifold above what is possible under free market conditions. This study argues that the government should avail itself of this opportunity so that the ordinary people can be given the essential goods and services in adequate quantities and the government should finance all its expenditures either by borrowing from the RBI or by taxing the rich. Under the New Economic Policy (NEP), however, the government finances all its additional expenditures mainly by imposing indirect taxes on essential goods and services. If the government follows this practice, the study shows, the common people will suffer immensely following the imposition of a lockdown and the outbreak of an epidemic on account of cumulative fall in employment and spiralling increase in prices of essential goods and services.

**JEL Classification:E52, E62, E110, E120, E200**

**Keywords: COVID-19, Lockdown, Monetary Policy, Fiscal Policy**

## I. Introduction

Economic management of the COVID-19 pandemic has emerged as a challenge all across the world. In the absence of fully effective vaccines and medicines, the only way of putting a stop to the spread of the disease and, thereby, eliminate it is to impose a strict lockdown and to put in place a system that would allow the people to survive without coming into contact with one another. At the same time, the government should invest very heavily in the health sector and other essential sectors so that there does not emerge

1. M.Phil Student, Economics Department, Jadavpur University, Kolkata
2. Professor, Economics Department, Jadavpur University, Kolkata

any dearth of supplies of health care services and other essential goods and services to the ordinary people who constitute about 99 percent of the Indian population. The government has to make these investments since the ordinary people cannot afford the cost of health care services and other essential goods and services provided by the private sector. The lockdown is, however, extremely harsh on the ordinary people, as it robs a large section of these people of their income. This became vividly visible in India in the plight of the migrant workers who, having lost their sources of income, took to the streets en masse to go back to their own places. To continue with the lockdown as long as it is needed to eliminate the disease, the government should give transfers to the people so that their incomes are restored to the pre-lockdown levels and it should monitor the prices of essential goods so that they do not go up during lockdown. One major objective of this dissertation is to examine whether it is possible to implement the policy noted above. It shows that the lockdown gives an opportunity to the government to raise its investment in the essential sectors to a level that is substantially larger than what is feasible under free market conditions. It also shows that it is possible for the government to restore the incomes of all the people, who lose their livelihood due to the lockdown, to their pre-lockdown levels. It also argues that the government should finance all its expenditures either by borrowing from the RBI or by taxing the capitalists who earn the major part of the profit income.

Following the adoption of the New Economic Policy (NEP), Government of India has cut down direct tax rates drastically. It has also imposed stringent restrictions on the size of the fiscal deficit (government's borrowing) and made RBI independent of the government so that the government cannot borrow from the RBI at its will. As a result, the government is relying principally on indirect taxes on essential goods for meeting its expenditure. Our study shows that if the government meets its expenditures with indirect tax revenue from the essential sector, imposition of lockdown will immensely hurt the people in twoways. First, it will bring about a large and cumulative fall in employment and second, it will lead to a downward spiral in the real wage rate through a cumulative increase in the pricesof essential goods and services.

The literature on Pandemic and Indian economy does not contain any theoretical study that addresses the issues noted above. Hence, this study fills up an important gap in the literature.

We will use a macro-theoretic model suitable for India to derive our results. The model is presented below:

## II. The Model

We develop here a model that seeks to examine the implications of the lockdown that the Government of India imposed in 2020. Since the lockdown restrictions affected different sectors of production differently, to satisfactorily capture the effect of lockdown, we have to divide the economy into two sectors: the essential sector and the non-essential sector. The former produces the basic necessities of life, namely, food and other such necessities of life, education, healthcare and public administration and defence, and the inputs (including the machinery and equipment and construction) that directly and indirectly enter into their production. This sector was subject to lockdown to a much lesser extent. The non-essential sector producing the rest of the goods and services was subject to the lockdown to a much greater extent. The outputs of the former sector and the latter sector are denoted by Y and A respectively. Following the Keynesian tradition, we consider the short run only and assume that prices and wages are rigid and output in each of the sectors is determined by its demand.

**The Essential Sector**

The output of this sector is determined by the following equation–

$$Y = \left[\frac{W}{P_Y} lY + \frac{W}{P_Y}\bar{l}A + aA + R + G + I(\bar{r})\right] \quad (1)$$

where, $W \equiv$fixed money wage rate, which is the same in both the sectors, $P_Y \equiv$ price of Y, $l$ and $\bar{l}$ are fixed labour requirements for the production of one unit of Y and one unit of A, respectively. We divide the population into two classes, the rich and the poor. The rich consist of the capitalists and the highly skilled workers. Their demand for Y is fixed. It is independent of their income or the price of Y. Hence, we disregard this component of demand for Y. The poor consisting of the unskilled and semi-skilled workers are assumed to spend all their income on Y. To produce one unit of $A$, a fixed $a$ amount of $Y$ is needed so that $aA$ gives the total amount of intermediate input demand for $Y$ from the $A$ sector. $R$ denotes the transfers given by the government to the workers and $G$ denotes government consumption. I denotes investment demand for Y. I, as standard, is assumed to be a decreasing function of the interest rate denoted by r. The RBI keeps the interest rate at a target level, through open market operations, liquidity adjustment facility etc.

Solving Eq. (1) we will get Y as a function of A. It is given by the following equation:

$$Y = \frac{\left(\frac{W}{P_Y}\bar{l}+a\right)A+R+G+I(\bar{r})}{\left(1-\frac{W}{P_Y}l\right)} \quad (2)$$

When we plot Eq. (2) in the (Y,A) plane in a diagram, we call it the 'YY schedule'. If A changes, Y changes in the same direction. So, YY schedule, shown in Figure 1, is positively sloped.

The slope of the YY schedule is given by $\frac{\left(\frac{W}{P_Y}\bar{l}+a\right)}{\left(1-\frac{W}{P_Y}l\right)}$ and the horizontal intercept of the

YY schedule in Figure 1 is given by $\frac{R+G+I(\bar{r})}{\left(1-\frac{W}{P_Y}l\right)}$. Both the intercept and the slope are positive.

**The Non-Essential Sector**

The output of the non-essential sector is determined by the following equation:

$$A = c_c\left[\frac{P_Y}{P_A}\left(1-\frac{W}{P_Y}l\right)Y + \left(1-\frac{W}{P_A}\bar{l} - a\frac{P_Y}{P_A}\right)A\right] \quad (3)$$

This sector produces principally luxury consumption goods. The output of this sector is consumed by the capitalists and the high skilled workers. Profit here includes the wages of high skilled workers.

The RHS of the Equation (3) is the demand for luxury consumption goods. Here, $\frac{P_Y}{P_A}\left(1-\frac{W}{P_Y}l\right)Y$ is the profit of Y sector in terms of A and $\left(1-\frac{W}{P_A}\bar{l} - a\frac{P_Y}{P_A}\right)A$ is the profit of A sector in terms of A. $c_c$ is the fixed average and marginal propensities to consume of the capitalists.

We can solve Eq. (3) to get A in terms of Y.

$$A = \frac{\left[c_c\frac{P_Y}{P_A}\left(1-\frac{W}{P_Y}l\right)\right]Y}{\left[1-c_c\left(1-\frac{W}{P_A}\bar{l}-a\frac{P_Y}{P_A}\right)\right]} \quad (4)$$

Plotting this schedule diagrammatically in the (Y, A) plane, we will get the

'AA schedule'.Now, the slope of the AA schedule, $\frac{c_c\frac{P_Y}{P_A}\left(1-\frac{W}{P_Y}l\right)}{\left[1-c_c\left(1-\frac{W}{P_A}\bar{l}-a\frac{P_Y}{P_A}\right)\right]}$, is positive, with

zero intercept. Therefore, the AA schedule is a ray through the origin, shown in Fig.1.

We can solve (2) and (4) for the equilibrium values of Y and A. The solution corresponds to the point of intersection of the YY and AA in Figure 1. This equilibrium is also stable. The stability condition is derived in the Appendix section.

We first focus on the case where government transfers (R) and government consumption (G) are financed by borrowing from the RBI. Therefore,

$$R + G = \frac{dH}{P} \quad (5)$$

In the above equation, the RHS is the addition to the stock of high powered money, denoted by H. For simplicity, we assume that financing of R and G is the only reason why H is created in the economy.

**Financial Sector:**

We now incorporate the financial sector. For simplicity, we assume that it consists only of the RBI and the commercial banks. We will refer to the latter only as banks. We assume that the capitalists and high skilled workers hold all their savings as deposits with the commercial banks. Total supply of new loans from the banks and the RBI, denoted $L_s$ , is given by the following equation –

$$L_s = (1 - c_c)\left[\left(1 - \frac{W}{P_Y} l\right) Y.P_Y + \left(1 - \frac{W}{P_A}\bar{l} - a.\frac{P_Y}{P_A}\right) A.P_A\right]\left(1 - \rho(\bar{r})\right) + b + \frac{dH}{P} \tag{6}$$

Eq. (3) shows the supply side of the loan market. On the RHS, $(1 - c_c)$ is the fixed marginal and average propensity to save of the capitalists. $\rho$ denotes cash-reserves ratio of the banks. As standard, we have made it a decreasing function of $\bar{r}$. $b$ denotes RBI's supply of new loans to the banks. It may be positive or negative for reasons we will explain shortly. Finally, $\frac{dH}{P}$ is the supply of new loans to the government.

Under the assumption that the only source of demand for new bank loans is investment demand, which is financed entirely with new bank loans, the demand for new loans of the non-bank public, denoted $L_d$ , is given by the following equation:

$$L_d = I(\bar{r}) + R + G \tag{7}$$

Equating the Eq. (6) and Eq. (7), we get the equilibrium of financial sector. The equilibrium condition, using (5), is given by the following equation:

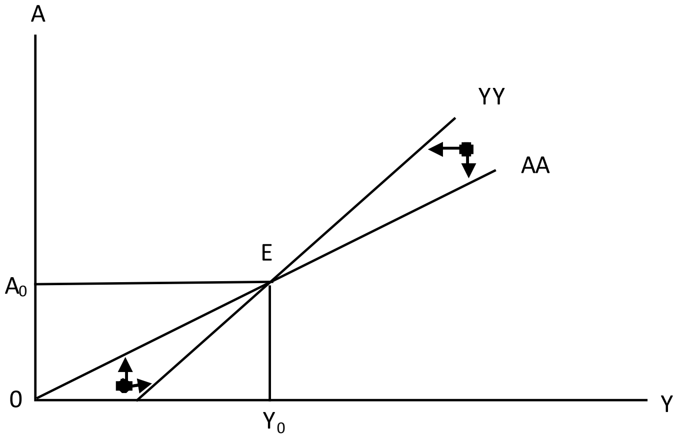
$$(1 - c_c)\left[\left(1 - \frac{W}{P_Y} l\right) Y.P_Y + \left(1 - \frac{W}{P_A}\bar{l} - a.\frac{P_Y}{P_A}\right) A.P_A\right]\left(1 - \rho(\bar{r})\right) + b = I(\bar{r}) \tag{8}$$

Note that in (8), $b$ is the balancing factor. If at the targeted interest rate, demand for new bank loans exceed the supply of new bank loans, the banks meet the excess demand by borrowing from the RBI. $b$ is positive in this case. If the supply of new bank loans exceed the demand for new bank loans, the banks lend out their excess supply of loans to the RBI. $b$ is negative in that case.

The specification of the model is now complete. It consists of four key equations (1), (3), (5) and (8). We can solve them for the equilibrium values of the endogenous variables: Y, A, b and $\frac{dH}{P}$. Solving (2) and (4) we will get the equilibrium values of Y and A. Solving equation (5) we will know the value of $\frac{dH}{P}$ . Finally, putting the values of Y and A in Eq. (8), we will get the equilibrium value of $b$. Figure 1 shows the equilibrium values of Y and A.

**Figure 1: Determination of Equilibrium value of Y and A.**

The equilibrium valueof Y is $Y_0$ and that of A is $A_0$ and the equilibrium is at point E. The YY schedule has a positive intercept on the Y axis. The magnitude of the intercept is




$$\frac{R+G+I(\bar{r})}{\left(1-\frac{W}{PY}l\right)}.$$

## III. Challenges India is Facing and the Maximum Possible Level of G

The challenges India is facing at the present are the following. First, its health care system is too small to tackle the pandemic. Hence, the government should see to it that the health care system expands at the fastest possible pace. The government cannot entrust the business men with this task. They are driven by profit motive and only about one percent of the Indians have access to the health care system they build. As almost 99 percent of the Indians have access only to the public health care system, the government has to invest directly in the health sector so that it expands at the fastest possible pace. Again, incidence of hunger and malnutrition in India is staggering. It is one of the highest in the world. Obviously, people suffering from malnutrition and hunger fall easy prey to viral attacks. Hence, the government has to invest very heavily in the food sector to expand its production. The government cannot leave this to the businessmen because 85 percent of India's arable land is cultivated by small and marginal farmers who are too poor to purchase the water and other essential ingredients of production on an adequate scale. Therefore, the government has to invest in irrigation in dry land areas. It has to invest heavily in drainage and flood control facilities in rain-fed areas. Note that these facilities belong to the category of social goods. The government also has to invest very heavily in agricultural R&D to continuously innovate seeds with higher productivity, better suited to local conditions and more resistant to local pests and better farming practices. For this reason, the government has to raise G to the maximum possible level and devote most of it to the health sector and the sector producing food and the other basic necessities of life. Let us first examine what problem the government faces in raising G in free market conditions, when it finances the increase in G by money creation.

**An Increase in G Financed by Money Creation**

Taking total differential of (2) and (4) treating all variables other than $Y, A \text{ and } G$ as fixed and, then, solving for $dY$ and $dA$, we get –

$$dY = \frac{dG}{1-\left[\frac{W}{P_Y}l+\left(\frac{W}{P_Y}\bar{l}+a\right).\frac{c_c.\frac{P_Y}{P_A}\left(1-\frac{W}{P_Y}l\right)}{\left[1-c_c\left(1-\frac{W}{P_A}\bar{l}-a.\frac{P_Y}{P_A}\right)\right]}\right]} \tag{9}$$

and

$$dA = \frac{c_c.\frac{P_Y}{P_A}\left(1-\frac{W}{P_Y}l\right)}{\left[1-c_c\left(1-\frac{W}{P_A}\bar{l}-a.\frac{P_Y}{P_A}\right)\right]}.dY \tag{10}$$

Let us now explain (9) and (10). Following a given increase in G by $dG$ financed by borrowing from the RBI, there emerges an excess demand for Y of $dG$ at the initial equilibrium ($Y$,$A$). Producers of $Y$ respond to it by raising $Y$ in the first round by $dY_1 = dG$. This increase in $Y$ raises wage income and profit by $\frac{W}{P_Y}l.dG$ and $\left(1-\frac{W}{P_Y}l\right).dG$, respectively. The former is spent entirely on Y and the latter creates an excess demand of $c_c.\frac{P_Y}{P_A}\left(1-\frac{W}{P_Y}l\right).dG$ for A. To meet this excess demand for A, output of A rises. However, a unit increase in A also creates additional demand for A. It raises profit in the A-sector by $\left(1-\frac{W}{P_A}\bar{l}-a.\frac{P_Y}{P_A}\right)$ giving rise to an additional demand for A of $c_c\left(1-\frac{W}{P_A}\bar{l}-a.\frac{P_Y}{P_A}\right)$. Therefore, per unit increase in $A$, excess demand for A falls by $\left[1-c_c\left(1-\frac{W}{P_A}\bar{l}-a.\frac{P_Y}{P_A}\right)\right]$. Accordingly, to remove the excess demand of $c_c.\frac{P_Y}{P_A}\left(1-\frac{W}{P_Y}l\right).dG = c_c.\frac{P_Y}{P_A}\left(1-\frac{W}{P_Y}l\right).dY_1$, A will rise by $dA_1 = \frac{c_c\frac{P_Y}{P_A}\left(1-\frac{W}{P_Y}l\right)}{\left[1-c_c\left(1-\frac{W}{P_A}\bar{l}-a.\frac{P_Y}{P_A}\right)\right]}.dY_1 \equiv \theta dY_1$. This completes the first round. The increases in Y and A in the first round will, again, raise demand for Y by $\frac{W}{P_Y}l.dY_1 + \left(\frac{W}{P_Y}\bar{l}+a\right)dA_1 = \left[\frac{W}{P_Y}l + \left(\frac{W}{P_Y}\bar{l}+a\right)\theta\right]dY_1 \equiv \alpha dY_1$. Hence, Y in the second round will go up by $dY_2 = \alpha dY_1$.This increase in Y will create additional demand for A

and A, for reasons explained in the first round,

will go up by $dA_2 = \theta dY_2 = \theta\alpha dY_1$.

Similarly, in the third round, Y and A will go up by $dY_3 = \alpha dY_2 = \alpha^2 dY_1$ and $dA_3 = \theta dY_3 = \theta\alpha^2 dY_1$. This process of expansion will continue until the additional demand that is created for Y in each successive round eventually falls to zero. When this happens, the economy achieves a new equilibrium. Thus the total increase in Y and A will be given by

$$dY = dY_1 + \alpha dY_1 + \alpha^2 dY_1 + \cdots \ldots\ldots\ldots = \left(\frac{1}{1-\alpha}\right).dY_1 \qquad (11)$$

and

$$dA = \theta.[dY_1 + \alpha dY_1 + \alpha^2 dY_1 + \cdots \ldots\ldots\ldots] = \theta.\left(\frac{1}{1-\alpha}\right).dY_1 \qquad (12)$$

From the above it follows that, following a given increase in *G*, there will take place a large and cumulative expansion in Y. Therefore, given the installed capacity for the production of Y in the given period under consideration, G cannot be increased much in free market conditions. This yields the following proposition:

**Proposition 1:** *Given the installed capacity for the production of Y in any given period, the maximum G that can be sustained is quite small relative to what is needed to bring about the growth in the essential sector at the desired pace.*

Under free market conditions, therefore, the government will not be able to bring about an expansion in the essential sector at the desired pace. In what follows, we will examine whether imposition of lockdown enables the government to step up the growth rate of the essential sector.

**IV. Lockdown, Protection of the Common Man and the Growth of the Essential Sector**

The only way of tackling a pandemic in the absence of any fully effective vaccines or medicines is to impose a strict lockdown that shuts down the whole of the non-essential sector and put in place a system that allows people to survive without coming into contact with another except for the production of the essential goods and services. Since the lockdown robs a large section of the people of their income, the government should restore their incomes to the pre-lockdown levels. The government should also invest very heavily in the health sector and the other essential areas so that people have adequate access to healthcare and other essential goods in the presence of as well as in the absence of the pandemic. The government should continue with this lockdown until the disease stops spreading and, thereby, dies a natural death. Note that in the scenario delineated above, there is no conflict between life and livelihood, since everyone receives during the lockdown the pre-lockdown level of income and the government makes sure that production of essentials grows at the fastest possible pace. During the lockdown the government should also provide the unemployed with incomes so that they have adequate access to all the necessities of life. In what follows, we will examine to what extent this is feasible.

We will now specify the differences the imposition of the lockdown will bring about in our model. First, the output of A will be determined by the level of lockdown restrictions, denoted by $L$, and not by (3). Thus,

$$A = A(L);\ A' < 0 \tag{13}$$

Also note that the lockdown restriction on A will close down many investment opportunities in the non-essential sector so that investment also becomes a decreasing function of L. Thus we rewrite the investment function as

$$I = I(\bar{r}, L);\ I_L < 0 \tag{14}$$

$$Y = \left[\frac{W}{P_Y} lY + \frac{W}{P_Y}\bar{l}.A(L) + a.A(L) + R + G + I(\bar{r}, L)\right] \tag{15}$$

Let us first examine the effect of an increase in $L$. Taking total differential of (15) treating all variables other than Y and L as fixed and, then, solving for $dY$, we get

$$dY = \frac{\left[\left(\frac{W}{P_Y}\bar{l} + a\right).A' + I_L\right]dL}{\left(1 - \frac{W}{P_Y}l\right)} \tag{16}$$

Let us explain (16). Following a given increase in the lockdown restrictions, both A and I decline by $A'dL$ and $I_L dL$ 'respectively'. As a result, demand for Y falls by $N \equiv \left[\left(\frac{W}{P_Y}\bar{l}+a\right)A' + I_L\right]dL$. Hence, $Y$ in the first round falls by $dY_1 = N$. This fall in Y will reduce the wage bill in the essential sector by $\frac{W}{P_Y}l.dY_1$ reducing demand for Y by the same amount. Therefore, $Y$ in the second round will go down by $dY_2 = \frac{W}{P_Y}l.dY_1$. For similar reason, Y in the third round will fall by $dY_3 = \frac{W}{P_Y}l.dY_2 = \left(\frac{W}{P_Y}l\right)^2 dY_1$. This cumulative contraction in demand for Y will continue until the fall in demand for Y that takes place in each successive round eventually falls to zero. When that happens, the economy achieves a new equilibrium. Thus, the total fall in Y is given by –

$$dY = dY_1 + \frac{W}{P_Y}ldY_1 + \left(\frac{W}{P_Y}l\right)^2 dY_1 + \cdots \ldots \ldots = \frac{dY_1}{\left(1-\frac{W}{P_Y}l\right)} \qquad (17)$$

From the above it follows that, if the government imposes lockdown and does not compensate for the loss in income suffered by the people, there will be large and cumulative fall in aggregate output and employment causing immense suffering to the common people. The rate of unemployment is given by –

$$U = \frac{\bar{N} - lY - \bar{l}A}{\bar{N}} = 1 - \frac{1}{\bar{N}}\left(lY + \bar{l}A\right) \qquad (18)$$

Thus, following the imposition of lockdown, unemployment goes up by-

$$dU = -\frac{1}{\bar{N}}.\left[l.\frac{\left\{\left(\frac{W}{P_Y}\bar{l}+a\right)A' + I_L\right\}.dL}{\left(1-\frac{W}{P_Y}l\right)} + \bar{l}.A'dL\right] > 0 \qquad (19)$$

The above analysis yields the following proposition:

**Proposition 2**: *In the absence of any kind of intervention on the part of the government to alleviate the sufferings of the people adversely affected by the lockdown, aggregate output will fall substantially, and the rate of unemployment will rise steeply plunging the economy into a deep recession and a sizable section of the people into deep poverty.*

This is perhaps what happened in India following the imposition of the pandemic induced lockdown and the suffering of the people became vivid in the plight of the migrant workers.

We will now show in what follows that the lockdown is not only a sure way of putting an end to the pandemic it also gives the government an opportunity of maximising investment levels in the essential sector for the masses after restoring the incomes of all the workers who have lost their jobs on account of the lockdown. Setting $R = \frac{W}{P_Y}.\bar{l}(\bar{A} - A(L))$, we rewrite (15) as –

$$Y = \left[\frac{W}{P_Y} lY + \frac{W}{P_Y}\bar{l}A(L) + aA(L) + \frac{W}{P_Y}.\bar{l}(\bar{A} - A(L)) + G + I(\bar{r}, L)\right] = \left[\frac{W}{P_Y} lY + \frac{W}{P_Y}\bar{l}\bar{A} + aA(L) + G + I(\bar{r}, L)\right] \tag{20}$$

In (20), $\bar{A}$ denotes the initial equilibrium level of $A$. Let us first examine the effect of an increase in $L$ on $Y$. Taking total differential of (20), treating all variables other than $Y$ and $L$ as fixed and, then, solving for $dY$, we get –

$$dY = \frac{[a.A' + I_L]dL}{\left(1 - \frac{W}{P_Y}l\right)} \tag{21}$$

Comparing (21) and (16), we find that contraction in $Y$ in the present case is much less. This yields the following proposition:

**Proposition 3:** *If the government follows the policy of restoring the income levels of those who lose jobs on account of the lockdown by borrowing from the central bank, the contraction of GDP due to the lockdown will be much less and the government can continue with the lockdown as long as necessary to stop the pandemic.*

As we have already mentioned, to contain the pandemic, the government should strive to bring about an expansion in the essential sector for the masses at the fastest possible pace. This means that it has to raise G to the maximum possible level. We will now examine by how much Y rises following a given increase in $G$ financed by money creation. To derive this, we will take total differential of (20) taking all variables other than $Y$ and $G$ as fixed and, then, solve for $dY$. This gives the following:

$$dY = \frac{dG}{1 - \frac{W}{P_Y}l} \tag{22}$$

If we compare (22) and (9), we find that the expansion in $Y$ is much less under lockdown following a given increase in G and this enables the government to raise G by a much larger amount than what is possible under free market conditions starting from the same initial level of $Y$ and given the installed capacity for the production of $Y$ in the period under consideration. This implies that the maximum level of G that can be sustained under lockdown is much larger than what is possible under free market conditions. This is because the leakage of *Y* into the non-essential sector as intermediate input does not occur under lockdown.

$$G^* = \left(1 - \frac{W}{P_Y} l\right)\bar{Y} - \frac{W}{P_Y}\bar{l}\bar{A} - aA(L) - I(\bar{r}, L) \tag{23}$$

$G^*$ denotes the maximum possible *G*, $\bar{Y}$ denotes the capacity level of *Y* and $\bar{A}$ denotes either the initial equilibrium *A* or the capacity *A*. From (23) it is clear that the government can raise $G^*$ by raising *L*. Following a given increase in *L*, $G^*$ goes up by –

$$dG^* = -aA'.dL - I_L dL \tag{24}$$

The above discussion yields a clear line of management of the pandemic. The government should impose strict lockdown and put in place a system that would allow the people to survive without coming into contact with one another. The lockdown restriction should reduce the output of the non-essential sector to the minimum possible level. It should restore the incomes of all those who lose their income because of the lockdown to the pre-lockdown level and raise G to the maximum possible level so that *Y* rises to its capacity level. The increase in G to the maximum possible level is necessary to raise the growth rate of the essential sector for the masses to the maximum possible level. The government should finance all its additional expenditures by borrowing from the RBI. In fact, the government can and should pay each of the unemployed workers the wage income that an employed worker receives. If the government follows this policy, it can continue with the lockdown as long as it is necessary to completely remove the disease. It will also raise the rate of growth of the essential sector for the masses to the highest possible level.

## V. Alternative Modes of Financing Government Expenditure under Lockdown

The strategy delineated above has one lacuna. The New Economic Policy (NEP) that India has been following since 1991 puts stringent restrictions on the size of government's fiscal deficit. The RBI has also been made independent of the government so that the government cannot borrow from the RBI. Under these conditions, we have to look for other modes of financing government expenditure. The most eminently just mode of financing is taxation of the income of the rich. We will first focus on it.

### V.1 Taxation of Income of the Rich

The personal income tax structure in India is highly unjust. Despite extreme inequality in the distribution of income and wealth in India as reported by Oxfam India (2018), income tax rate is capped at 30 percent (see Table 1). From the data released by Oxfam India(2018), one can safely conclude that more than 80 percent of India's wealth and income is in the hands of just 1 percent of Indians. Individuals earning an annual income of

Rs.2,50,000 or less are taxed at the rate of 0 percent. Individuals' annual income in excess of Rs.2,50,000 up to Rs.5,00,000 is taxed at the rate of 5 percent. The tax rate applicable to individuals' annual income in excess of Rs.5,00,000 and not exceeding Rs.10,00,000 is taxed at the rate of 20 percent, a 15 percent increase. However, individuals' income above Rs.10,00,000 is taxed at the rate 30 percent. Instead of raising income tax rates steeply for every additional Rs.5,00,000 of income, Government of India (GoI) has kept income tax rates unchanged for income levels in excess of Rs.10,00,000, it does not matter by how much the income level exceeds Rs.10,00,000. Since the rich in India are unduly under taxed to the extreme, we will examine below how our strategy will work if government expenditures are financed by taxing the rich. Since the rich earn profit, the tax considered here will fall on profit. Note that this will not bring about any change in Eq. (20) – Eq. (23). However, it will reduce profit income by the amount of the additional tax collection. Denoting it by $T$, we get –

$$T = \frac{W}{P_Y}.\bar{l}\left(\bar{A} - A(L)\right) + G^* = \frac{W}{P_Y}.\bar{l}\left(\bar{A} - A(L)\right) + \left(1 - \frac{W}{P_Y}l\right)\bar{Y} - \frac{W}{P_Y}\bar{l}\bar{A} - aA(L) - I(\bar{r}, L) = \left(1 - \frac{W}{P_Y}l\right)\bar{Y} - \left(\frac{W}{P_Y}.\bar{l} + a\right)A(L) - I(\bar{r}, L) \tag{25}$$

$$\pi^T = \pi - T = \left(1 - \frac{W}{P_Y}l\right)\bar{Y} + \left\{1 - \left(\frac{W}{P_Y}.\bar{l} + a\right)\right\}A(L) - \left[\left(1 - \frac{W}{P_Y}l\right)\bar{Y} - \left(\frac{W}{P_Y}.\bar{l} + a\right)A(L) - I(\bar{r}, L)\right] = A(L) + I(\bar{r}, L) \tag{26}$$

In (26), $\pi^T$ and $\pi$ denote post-tax and pre-tax profit, respectively. This mode of financing is eminently just and it will keep the strategy as effective as it was under money financing. Let us summarize our finding in the following proposition:

**Proposition 4:** *Following the imposition of a lockdown, the government should provide every unemployed worker with the income that each employed worker receives and raise G to the maximum possible level so that the essential sector for the masses rises at the fastest possible pace. If the government finances this expenditure by taxing the capitalists' income, it will be just and effective and the impact of the government's programme will be the same as that under money financing.*

However, taxation of the income of the rich is infeasible in capitalist countries. The political parties in these countries do not have any income of their own. They get themselves going by securing large donations from the rich. The larger the amount of fund at the disposal of a political party, the greater is its competitive strength. Hence, the political parties work for the rich and keep their taxes at the minimum possible level. Moreover, the capitalists, in case the government taxes them, can raise $P_Y$ and thereby may seek to transfer the tax burden on to the workers. For the first reason cited above, governments in capitalist countries including India seek to meet its expenditures by raising indirect tax rates. In what follows, we will examine its implications.

### V.2 Indirect Taxation of Essential Goods

As we have pointed out above, the government tries to raise as much revenue as possible from indirect taxes. In India at the present the major part of the aggregate tax revenue comes from indirect taxation. In times of lockdown, the output of the non-essential sector is reduced to the minimum. Hence, taxes on production or sale of non-essential goods will yield very little revenue. Hence, the government has to tax the production or sale of the output of the essential sector to finance its expenditures. In what follows, we will examine the implications of such an indirect tax.

We assume that the tax is imposed on the sale of the output of the essential sector at the rate $\tau$. Hence, the post-tax price of $Y$ denoted $P_Y'$ is given by –

$$P_Y' = P_Y(1+\tau) \tag{27}$$

Where, $P_Y$ is the price received by the producers of $Y$, while $P_Y'$ is the price faced by the buyers. Since the whole of Y in our model is sold off, total tax collection of the government is $P_Y \tau Y$. Therefore, total tax collection in terms of Y, denoted T, is given by –

$$T = \frac{P_Y \tau Y}{P_Y(1+\tau)} = \frac{\tau}{(1+\tau)} Y \tag{28}$$

The government chooses $\tau$ in such a way that $T$ equals $G$. This implies that $\tau$ is always such that

$$T = \frac{\tau}{(1+\tau)} Y = G \tag{29}$$

Incorporating (27) into (20), we rewrite it 'as'

$$Y = \left[\left\{\frac{W}{P_Y} lY + \frac{W}{P_Y} \bar{l}\bar{A}\right\}\frac{1}{(1+\tau)} + aA(L) + G + I(\bar{r}, L)\right] \tag{30}$$

Substituting (29) into (30) and using the equation $\frac{1}{(1+\tau)} = 1 - \frac{\tau}{(1+\tau)}$, we rewrite (30) 'as' $Y = \frac{W}{P_Y}\{lY + \bar{l}\bar{A}\}\left(1 - \frac{G}{Y}\right) + aA(L) + G + I(\bar{r}, L)$ (31)

We can now use (31) to examine how a given increase in $L$ by $dL$ will affect Y. Taking total differential of (31) treating all variables other than Y and L as fixed and, then, solving for $dY$, we get –

$$dY = \frac{[aA' + I_L]dL}{\left[1 - \frac{W}{P_Y} l\left(1 - \frac{G}{Y}\right) - \frac{W}{P_Y}\{lY + \bar{l}\bar{A}\}\frac{G}{Y^2}\right]} < 0 \tag{32}$$

Let us explain (32). Following a given increase in $L$ by $dL$, the employment and wage bill in the non-essential sector fall and so does investment. As a result, demand for Y falls by the numerator denoted by N at the initial equilibrium Y. Hence, producer's lower Y in the first round by $dY_1 = N$. The fall in Y in the first round will produce two effects on demand for Y. First, wage bill in the essential sector will go down by $\frac{W}{P_Y} l\left(1-\frac{G}{Y}\right) dY_1$. Second, the fall in $Y$ will induce the government to raise the indirect tax rate. This will raise the price of Y faced by the workers as buyers of Y. Their real income will accordingly fall by $\frac{W}{P_Y}\{lY + \bar{l}\bar{A}\}\frac{G}{Y^2} dY_1$. Therefore, workers' demand for Y will fall by $\left[\frac{W}{P_Y} l\left(1-\frac{G}{Y}\right) + \frac{W}{P_Y}\{lY + \bar{l}\bar{A}\}\frac{G}{Y^2}\right] dY_1 \equiv \beta dY_1$. Hence, Y in the second round will fall by $dY_2 = \beta dY_1$. For similar reasons, $Y$ in the third round will go down by $dY_3 = \beta dY_2 = \beta^2 dY_1$. This process of contraction will continue until the fall in demand that takes place in each successive round eventually falls to zero. When that happens, the economy achieves a new equilibrium. Thus, the total fall in Y is given by

$$dY = dY_1 + \beta dY_1 + \beta^2 dY_1 + \ldots\ldots\ldots\ldots = \frac{dY_1}{1-\beta} \qquad (33)$$

This explains (32). We can summarize the result derived above in the form of the following proposition:

**Proposition 5:***If the government finances its expenditure by imposing indirect taxes on the output of the essential sector, it will hurt the workers in two ways. First, it will bring about a large and cumulative fall in the level of employment. Second, it will bring about a cumulative increase in the price of the essential goods reducing the real income of the workers.*

From the above it follows that resorting to indirect taxes on essential goods **for financing government expenditure** is an extremely cruel means of financing government expenditure in times of imposition of a lockdown. It will substantially impoverish the workers not only by bringing about a large and cumulative fall in employment but also by engendering a cumulative rise in the prices of essential goods.

## VI. Conclusion

This study outlines a feasible strategy of eliminating COVID-19. It argues that in the absence of any fully effective vaccines or medicines, the only way of putting an end to the disease consists in the imposition of a strict lockdown and putting in place a system that would enable the people to survive without coming into contact with one another. The government should put a stop to all non-essential activities (including production and distribution of all non-essential goods and services). It should at the same time invest as much as possible in health care and the rest of the essential sector so that the essential sector grows at the fastest possible rate. This is necessary to ensure that the common man gets the essential goods in adequate quantities. The government has to continue with the lockdown until the disease stops spreading completely. The problem with this programme is that the lockdown robs quite a large section of the people of their incomes. To implement the strategy, therefore, the government has to restore the incomes of the people, who suffer a loss in their income due to the lockdown, to their pre-lockdown levels. This study also shows that the lockdown gives the government an opportunity to raise its investment in the essential sector to a level that is substantially larger than what is possible under free market conditions. Our analysis shows that the government should finance all its additional expenditures either by borrowing from the RBI or by imposing taxes on the rich.

The strategy chalked out above is infeasible in India in the present scenario. India adopted the New Economic Policy (NEP) in July, 1991. The objective of the NEP is to hand over the ownership of all government enterprises and natural resources to the capitalists and give them a free reign in running and managing the Indian economy. Since the political parties have no income of their own, they get themselves going by securing donations from the capitalists (see in this context Ghosh and Ghosh (2019[a], 2019[b])). The larger the amount of fund a political party secures, the greater is its competitive strength. Hence, the political parties in India have given unconditional support to the NEP. They are implementing it through a series of economic reforms. These reforms have drastically cut direct tax rates so that the capitalists pay taxes, if they pay any tax at all, at the lowest possible rate. They have also put stringent restrictions on government's fiscal deficit (government's borrowing) and made RBI independent of the government so that the latter cannot borrow from the former. The government as a result has to resort to indirect taxation of essential goods to finance its expenditure. Our study shows that, if the government resorts to indirect taxation of essential goods to finance its expenditure, the lockdown will impact the workers very cruelly. They will suffer immensely on account of a cumulative decline in employment and a spiralling increase in prices that will send the real wage rate falling precipitously. This perhaps explains India's experience with lockdown and COVID-19, which became most sorrowfully visible all across the world through the plight of the migrant workers who, having lost all sources of livelihood, took to the streets in millions to make a long and arduous journey back to their own homes. The suffering of the migrant workers was only the tip of the iceberg. The recession due to the lockdown and the disease which made people afraid of undertaking nonessential economic activities even in the absence of the lockdown led to losses in incomes of a very large section of the people. (The growth rate of GDP at constant prices dropped from 4.8 percent in 2019-20 to -7.9 percent in 2020-21(see Government of India (2021)). The deep recession induced the government to hike continuously indirect tax rates on such essential items as diesel to bridge the gap in the budget created by the recession. This engendered a price spiral deepening immensely the suffering of the people. The lockdown was also inadequate as it was enforced without putting in place a system of doorstep delivery of essential goods and services. Hence, even during the lockdown, people had to throng the congested markets daily for purchasing the basic necessities of life. The immense suffering of the masses due to the losses in their incomes forced the government to withdraw the lockdown much before the disease had stopped spreading. Thus, if the vaccines do not prove to be fully effective, both COVID-19 and the suffering of the people will continue without end because of the extremely poor economic management of the epidemic, the only kind of management permissible under the NEP.

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**Table 1**

**Income Tax Slabs for Individuals and Hindu Undivided Family of Less Than 60 Years of Age for the Financial Year 2018-19**

| Income Tax Slab | Tax Rate | Health and Education Cess |
|---|---|---|
| Income up to Rs.2,50,000 | No tax | |
| Income from Rs.2,50,000 –Rs.5,00,000 | 5% | 4% of total tax |
| Income from Rs.5,00,000 – Rs.10,0000 | 20% | 4% of total tax |
| Income more than Rs.10,0000 | 30% | 4% of total tax |

Surcharge: 10% of total income tax for income from Rs.50 lakhs to Rs.1 crore

Surcharge: 15% of total income tax for income more than Rs.1 crore

**Source: Income Tax Department, Government of India**

**Appendix:**

To show the stability condition of Figure 1 mathematically, we will use the concept of difference equation as we are considering the model as static.

Here, general formula is –

$$\frac{dY}{dt} = \theta . E(Y, A) \quad where\ \theta > 0 \tag{A.1}$$

and

$$\frac{dA}{dt} = \bar{\theta} . \bar{E}(Y, A) \quad where\ \bar{\theta} > 0 \tag{A.2}$$

$\frac{dY}{dt}$ is a function of excess demand for Y and $\frac{dA}{dt}$ is a function of excess demand for A. The value of $\frac{dY}{dt}$ $and$ $\frac{dA}{dt}$ will be zero if there is no excess demand in the Y and A market, respectively.

Now, $E(Y, A) and\ \bar{E}(Y, A)$ have to be linearized applying Taylor's rule around the equi librium values of Y and A.

$$E(Y,A) \cong E(Y^*,A^*) + E_Y(Y^*,A^*) * (Y - Y^*) + E_A(Y^*,A^*) * (A - A^*) \tag{A.3}$$

Where, $Y^* and\ A^*$ are the equilibrium values of $Y\ and\ A$. So, $E(Y^*,A^*) = 0$.

Therefore,

$$E(Y,A) = E_Y(Y^*,A^*) * (Y - Y^*) + E_A(Y^*,A^*) * (A - A^*) \tag{A.4}$$

$$\bar{E}(Y,A) \cong \bar{E}(Y^*,A^*) + \bar{E}_Y(Y^*,A^*) * (Y - Y^*) + \bar{E}_A(Y^*,A^*) * (A - A^*) \tag{A.5}$$

Again as $Y^* and\ A^*$ are the equilibrium values of $Y\ and\ A$. So, $\bar{E}(Y^*,A^*) = 0$.

The Eq. (A.5)becomes –

$$\bar{E}(Y,A) = \bar{E}_Y(Y^*,A^*) * (Y - Y^*) + \bar{E}_A(Y^*,A^*) * (A - A^*) \tag{A.6}$$

The equation (A.1) and (A.2) become –

$$\frac{dY}{dt} = \theta[E_Y(Y^*,A^*) * (Y - Y^*) + E_A(Y^*,A^*) * (A - A^*)] \tag{A.7}$$

and

$$\frac{dA}{dt} = \bar{\theta}[\bar{E}_Y(Y^*, A^*) * (Y - Y^*) + \bar{E}_A(Y^*, A^*) * (A - A^*)] \tag{A.8}$$

$$\begin{bmatrix} \frac{dY}{dt} \\ \frac{dA}{dt} \end{bmatrix} = \begin{bmatrix} \theta \\ \bar{\theta} \end{bmatrix} \begin{bmatrix} E_Y & E_A \\ \bar{E}_Y & \bar{E}_A \end{bmatrix} \begin{bmatrix} \tilde{Y}_t \\ \tilde{A}_t \end{bmatrix} \ where, \tilde{Y}_t = (Y - Y^*) \ and \ \tilde{A}_t = (A - A^*) \tag{A.9}$$

**Stability conditions:**

(i) $E_Y + \bar{E}_A < 0$

(ii) $\begin{vmatrix} E_Y & E_A \\ \bar{E}_Y & \bar{E}_A \end{vmatrix} > 0 \begin{vmatrix} E_Y & E_A \\ \bar{E}_Y & \bar{E}_A \end{vmatrix} > 0$

In our model,

$E_Y = \left(\frac{W}{P_Y} l - 1\right); E_A = \left(\frac{W}{P_Y} \bar{l} + a\right)$ and

$$\bar{E}_Y = c_c \frac{P_Y}{P_A}\left(1 - \frac{W}{P_Y} l\right); \ \bar{E}_A = \left[c_c\left(1 - \frac{W}{P_A}\bar{l} - a.\frac{P_Y}{P_A}\right) - 1\right]$$

Therefore, $E_Y + \bar{E}_A = \left[\left(\frac{W}{P_Y} l - 1\right) + \left\{c_c\left(1 - \frac{W}{P_A}\bar{l} - a.\frac{P_Y}{P_A}\right) - 1\right\}\right] < 0$

$$E_Y + \bar{E}_A = \left[\left(\frac{W}{P_Y} l - 1\right) + \left\{c_c\left(1 - \frac{W}{P_A}\bar{l} - a.\frac{P_Y}{P_A}\right) - 1\right\}\right] < 0$$

and

$$\begin{vmatrix} E_Y & E_A \\ \bar{E}_Y & \bar{E}_A \end{vmatrix} = \begin{vmatrix} \left(\frac{W}{P_Y} l - 1\right) & \left(\frac{W}{P_Y}\bar{l} + a\right) \\ c_c \frac{P_Y}{P_A}\left(1 - \frac{W}{P_Y} l\right) & \left[c_c\left(1 - \frac{W}{P_A}\bar{l} - a.\frac{P_Y}{P_A}\right) - 1\right] \end{vmatrix}$$

$$= \left(1 - \frac{W}{P_Y} l\right)(1 - c_c) > 0$$

Both the stability conditions are satisfied. So, the equilibrium is stable.

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# IMPACT OF COVID-19 PANDEMIC ON THE INDIAN ECONOMY AND STRATEGIES FOR ITS REVIVAL

**Biswajit Chatterjee[1]**


## Abstract

The effects of the Covid-19 pandemic have many dimensions and they cover the entire globe and the entire humanity. All these effects are deleterious in nature and the entire fabric of human society is ruptured to such an extent that revival strategies are difficult to design. Indian economy, which houses around 139 crores of population , and which was in a state of slackening progress prior to the outbreak of the pandemic in March 2020, faced severe adverse effects on the economy , lifestyle and society in the large , and efforts of designing the revival strategies have been debated in the public and policy domains for some time. This paper attempts to review the adverse economic consequences of the pandemic on the Indian Economy, and critically reviews the different policy initiates taken by the government from time to time since March 2020 to restore normalcy and mitigate the hardships faced by the people. We shall not, however, attempt to provide a contour of the spread of the virus across the nooks and corners of the Indian society and the nature of the plight faced by the people due to the operation of this virus. We shall , however, attempt to provide the contours of an alternative policy initiatives that can be taken to take the economy out of the morass. The ticklish economic issues and the political economy consequences of such alternative initiatives are also mentioned.


**Key words : Growth, unemployment, Migrant workers, poverty, revival strategies.**

**JEL Classification Codes :J08 , J 21, E 62, H 53.**

## I. Introduction

The covid-19 corona virus pandemic has affected the Indian economy and society severely, as it had impacted major countries of the globe too with slumping growth, loss of employment opportunities, human miseries and loss of life and livelihoods of millions of the world's population. India, which houses around 139 crores of population have already lost the lives of around 1.85 lakhs of her people and around 1.16crores being declared as recovered and safe as yet. The total tally of affected people, as per the latest

1. Former Professor of Economics, Jadavpur University,Kolkata-700032

Email :chatterjeeb3354@gmail.com

trends from different states, is above 1.65 crore. Compared to many countries like USA , Brazil , the India's performance account is not discouraging, but the effect itself was gigantic, given the economic conditions of the country. Now, there is second wave despite the vaccination process being underway. Such a huge effect of an external virus naturally calls for serious thinking and introspection about the nature of its effects on different dimensions of our economy, and the short run and long run consequences of the policies that are being taken to alleviate the welfare and well being of the distressed people. In what follows, we shall not venture to provide a contour of the spread of the virus across the nooks and corners of the Indian society and the nature of the plight faced by the people due to the operation of this virus, and strategies to mitigate the virus in our country. We shall, however, attempt to provide the contours of an alternative policy initiative that can be taken to take the economy out of the morass. The ticklish economic issues and the political economy consequences of such alternative initiatives are also taken up for discussion.

We must start with an important caveat. Since the event has not fully worked out and finished as yet, the statistical data -those are being churned by various agencies- government as well as private- to depict the ill effects of the pandemic, in India as well as abroad, are at most approximations and are not complete and robust. Therefore, any analysis that are attempted on the basis of such imperfect information / data set, are bound to be imprecise, based on set of assumptions or conjectures. However, the basic art of economic analysis happens to be the ability to make the imperfect data talk, and we shall make an attempt in that direction. We should also be cautious about use of statistical information in the correct manner, and not base our inferences on the spread of wrong information. One should remember the drastic consequences of spreading false information as were outlined in Aesop's fables. Nobody appreciates the credibility of the false information or statistics. The shepherd boy, who, for fun, used to shout regularly about the arrival of the wolf, actually did not find anybody rushing for help towards him when the wolf actually fell on the herd and killed all. His credibility was lost. Similarly, if somebody goes on repeating that the economy is in good shape, and we have almost conquered the pandemic, he/she would quickly find that nobody seriously would believe in such pronouncements. The end result could be inconsistency or contradiction in the official pronouncements, and often dangerous. The Indian economy is definitely in very bad shape, both before and after the outbreak of the pandemic since March 2020, and serious concerns and introspection are necessary to understand the nature of its crisis and analyse the possible consequences of alternative policy initiatives. Statistics, as a data science, portrays what it was expected to portray and a lot depends on the base chosen, and the purpose for which it is used. Take the example of growth rate. If you have Re 1 in your pocket and somebody gives you another Re 1, then the growth rate of your money holding is 100 %.But if you have Rs. 100/ as your initial balance, and if an additional Re 1 is transferred to you, then the growth rate of your money holding is simply 1%. A lot depends on the base chosen and also on the time period contained in the data, i.e., quarterly, monthly or annually. This simple fact was often forgotten in the numerous discussions of public policy during the last one year or so in the context of Covid-19 and its effects on the Indian economy.

## II. Effects

The effects of the COVID-19 pandemic on the Indian economy have been enormous and multifarious, but the effects indicate negative directions. We have lost many things-output loss, job loss, loss of fiscal buoyancy, expansion of the incidence of poverty and hunger, ill-health, balance of payments problems, domestic inflation, and above all loss of lives. One must note that immediately after the arrival of pandemic was recognized at the policy circle, Government of India promptly announced a set of stringent lockdowns across the country to contain the spread of COVID-19 pandemic., which "shut down almost two-thirds of the economy, and the collateral damage was enormous. It stranded 25–30 million migrants in cities far away from their homes, deprived of their work and dignity, at the mercy of food and shelter provided by State Governments or charities, often hungry and homeless, creating an unprecedented humanitarian crisis." (Nayyar, 2020). According to the Stringency Index developed by the Blavatnik School of Government at the University of Oxford, by the 25th of March, 2020, India had already reached the highest possible level of stringency (index value = 100). This involved a near-complete shutdown of all economic activities. Manufacturing, mining, construction, trade, hotels & restaurants, and transport, which account for more than 40% of both output and employment, were shut down completely. The brunt of the closedown fell heavily on casual labour on daily wages or workers in informal employment without any social protection. The livelihoods were threatened and uncertainty loomed large. To quote Nayyar (2020),"If lives are saved and, in doing so, livelihoods are sacrificed, it threatens lives of people who are deprived of incomes and hence unable to meet their basic human needs. This could lead to wide-spread hunger, reduced immunity and lost lives".

The starkest impact of the pandemic was in the informal sector -- the lockdown and loss of income have led to a shift towards self-employment, which has grown by 12% in the first six months of the COVID-19 crisis, while formal and informal wage employment have shrunk by 30% and 8%, respectively, shifting the labour market more towards low-quality employment. And urban informal employment, which accounts for 74% of the total employed, has been the worst affected, with the segment accounting for 83% of the newly unemployed. Another major factor having an impact on the poor is the rise in food prices, which has a larger weightage in their consumption basket. More distressing in the long term is the losses due to the shutdown in schools, affecting 391 million students in primary and secondary schools in South Asia, which cost students in the region

0.5 years of learning adjusted schooling. This can mean a lifetime loss of earnings of more than $600 billion or 5% of South Asia's GDP. Of this, India's loss is the highest at above $400 billion.

The "World Economic Outlook (2020)" brought out by the IMF posed disturbing trends . It noted that the sharp compression of consumption and the collapse of investments had badly hit India's GDP growth and inflation also was pushed up owing to the supply bottlenecks of the lockdown and increases in food prices. The IMF's estimate was that India's GDP would decline by 10.3% in 2020 as compared to a 3.3% decline in emerging and developing economies as a whole, along with a 5.8% decline in advanced economies, which would pull down overall global GDP by 4.4% in 2020. The sharp decline in India's GDP also stands out in contrast to GDP trends in emerging and developing Asia as a whole, which is expected to fall by only 1.7%.To make matters worse, the revised purchasing power parity prices worked out by the IMF also lowered India's share in the global GDP in 2019 from 7.8% to 7.1%. But the most disturbing development is that the IMF estimates show that Bangladesh's per capita GDP will rise to $1,888 in 2020, surpassing that of India, which will fall to $1,877.

In what follows, we shall reflect on the major aspects of the economy which had been impacted by the pandemic and the ensuing lockdowns. After the diagnosis of the root causes of the devastation, we shall turn on the possible strategies for revival of the economy.

***Output Contraction***

There was no denying the fact that the Covid-19 pandemic and the ensuing lockdowns have seriously contracted the GDP of the country, although the exact estimates of the extent of the damage have varied. Such estimates are usually based on presumptions and the methodology chosen, and different agencies have come up with the estimates of the decline in India's GDP during the post Covid scenario. It must be acknowledged that even prior to the arrival of pandemic in India, the Indian economy experienced deceleration in output and its growth due mainly to the recessionary tendencies across the globe. The initial sluggish refusal by the government of India to acknowledge the slowdown notwithstanding, the real questions that confront the economists and policy makers in the post facto scenario are: what caused this sharp downturn, and secondly, whether revival of the economy can be expected or not, and if so at what horizon. In other words, whether the downturn could be quickly arrested and the economy could march towards high growth trajectory in the near future or not. Serious introspection is required to unearth the puzzle involved.

Strictly speaking, the Covid-19 pandemic acted as a supply shock, and the associated lockdowns magnified the shock. In a partial equilibrium setting, supply shocks lead to contraction of output and rise in the market price- the general equilibrium effects would be similar with multi-market repercussions, provided the ideal conditions of a perfect market prevail. What actually occurred in the Indian economy (and may be in other similar economies as well) was the supply-shock induced demand constraint which permeated and propelled through the different sectors via the familiar Keynesian 'multiplier" mechanism. The 'Structuralist' macroeconomics framework developed for the less developed economies during the 1980s, and inspired by the theoretical researches on multi-market dis-equilibrium, developed by E. Malinvaud (1980) and J.P. Benassy (1984) , connotes this insight, which also echoes the process of effective demand determining the short run equilibrium output of such an economy . It is argued by researchers (Dasgupta.D. and Rajeev, M. EPW , May 31, 2020), that the Indian economy, which was facing demand deficiency and slowdown prior to the Covid-19 outbreak, plunged further downwards with the lockdown, and its problem typified the demand constrained Keynesian equilibrium, afflicted further by demand and supply failures generated by transaction cost, and the resulting scenario resembled s a "supply constrained" Keynesian equilibrium'. In other words, when the initial pandemic panic driven lockdown was imposed, the resultant supply shock led to output shutdown and the massive loss of wage income .This led to the contraction of domestic demand and the multiplier process aggravated the spread of demand deceleration across sectors, which further contracted output. GDP fell substantially and process is still continuing. Of course, the Finance Minister announced a set of revival packages, but the net injection during the 2020-21 financial year as yet happened to be too meager and insufficient, such that the process was not halted altogether.

In a broader framework, one may note the following. According to the Keynesian principles of effective demand in a capitalist economy, there are two major parts of aggregate demand for domestic production: domestic demand consisting of consumption expenditure, plus private investment expenditure, net government expenditure, and international demand reflected in net exports. The source of the last item was dramatically reduced for the Indian economy as the major foreign buyers of Indian goods also faced contraction in their economies due to the pandemic. And the revival of this component is actually contingent upon the actual revival of these economies, which is beyond our control. Domestic consumption demand shrunk basically because of two reasons: sharp rise in income and wealth inequality within India , and drastic decline in wage income because of large scale displacement of workers due to the pandemic- driven lockdown imposed. The private investment expenditure did not show any sign of picking up in view of the tremendous business uncertainty, as the ' animal spirits' seemed to have been quarantined .Only alternative was stepping up of government spending, particularly its investment spending, but unfortunately neither the direct cash transfer to the poorest of the poor nor massive investment schemes were favoured by the government. Thus , demand growth remains elusive, and the Government of India's multi-billion dollar economic stimulus package and the RBI's , liquidity infusion worth over $8 billion and a six-month loan moratorium scheme have failed to spike demand growth in the economy. For detailed discussions on the demand linkage in the Indian economy, using the Keynes –Kaleckian framework of Macroeconomics in the present Indian context, one may refer to Patnaik (EPW, Sept 19, 2020), and Kumar ( EPW, October , 2020).In the words of Patnaik(2020), *"The only way this downward drift can be arrested is through an injection of demand into the economy by the government, either through an increase in the autonomous expenditure of the government (larger healthcare expenditure is an obvious candidate here), or through transfer payments to the workers. This latter course has been advocated by many in India who have suggested that the government should give Rs 7,000 per month to every family (apart from 10 kilograms of foodgrains per month to every individual). The point to note is that this is not just a relief measure; it is also a way of stimulating the economy that would otherwise be on a downward course.*

*Put differently, a distinction must be drawn between two different kinds of contraction of the economy, one caused by the lockdown itself, and the other, which comes after the lockdown, caused by the auto-deflation of demand. The latter, which is usually ignored, arises from the fact that the workers (including in the informal sector) get indebted during the lockdown, which they have to pay back through restraints on their level of consumption after the lockdown gets over. The proposition that, because the lockdown is over, there is no further need for providing any cash transfers to the workers is invalid; even though, formally, the end of the lockdown may mean that workers are now in a position to earn their living through employment, this employment itself would be elusive unless they are supported through such a transfer."* Clearly, sharp rise in public investment, even that results in rise in the size of fiscal deficit, is urgently called for, as the government is not as yet serious about demand injection through transfer to the poor, which would have stimulated consumption demand in the economy.

***Unemployment and Migrant Workers***

An immediate implication of demand deceleration-driven output contraction happens to be loss of jobs and sharp rise in unemployment. Again, estimates vary, depending on the method chosen, and the data base used, but all such estimates indicate a contraction in employment space in the economy, which was already suffering from rising unemployment. Such contraction of jobs occurred mostly in the informal sector of the economy, but the formal sector also experienced job losses, albeit gradually. Naturally, such huge job losses have had their effects on the labour market of the economy, and the existing social protection measures proved inadequate to stem the rot. In other words, perhaps the worst plight that this expansive pandemic has exposed to the Indian economy and to the Indian people, is the case of migrant workers, mostly in the informal sector , who work and live in a state other than their own i.e., interstate migration. There are also international migration of both skilled and unskilled workers, most of the internal migrants are engaged in activities that are characterized as belonging to the informal or unorganized sector, and most of whom are casualised workforce. Such migrant workers were hit by the lockdown that were announced by the Government of India towards the close of March 2020 to prevent the spread of the covid-19 virus. The nation was assured that the announced lockdown would not harm its people's living and livelihood because there was a promised wage support to all the workers at their respective place of work, but were taken aback when nothing of that sort was forthcoming. The migrant workers knew they had no job, no pay, but would have to pay rent, buy food and had little saving. Without finding any solution after a few days, they started walking for home with the family including children and carrying some essential items. And this propelled the disaster. Norms of social distancing and lockdown were violated, and in many cases, police atrocities on- the – road migrant workers in different parts of the country continued unabated. Some state governments, already handicapped by the spread of Covid at differential rates, came forward to provide temporary shelter and food and although the railways came forward to arrange for sramik express trains between different states, and debates on who would bear the cost continued for some time at the political spheres, and spread of virus through migrant population became a source of scare in different parts of the country. In the informal sectors, the job losers in some cases , tried to salvage their livelihoods by switching occupations- and this occurred in many developing economies as well- e.g. the electrician or even postgraduate tutors in primary schools or coaching centers , switching as vegetable vendors etc. The overall impact remained grim. The efforts of both the central and the state governments to contain the flow of migrants or to reduce the incidences of their vulnerability, actually failed. Sub-human sufferings for most of these migrant workers and their families became the focal point of discussions in the post Covid scenario of the Indian economy. Such human procession started from all parts of the country and all workers wanted to go back home. Much later the government thought of arranging buses or trains. But thousands of workers were already walking for more than a thousand kilometers. And after few weeks, many of them thought of going back to their place of work, without knowing whether they would be able to get back to their original jobs or not, mainly because they realized that in their native places, scope of getting job and earning livelihoods were already destroyed by the pandemic and its associated fall outs.

At the time when the Covid crisis erupted and the subsequent lockdowns were announced by the Government of India at the end of March 2020, no official estimates of inter-state migrants were made available to gauge the numbers of migrant workers affected by the lockdown. It was also announced that people should not be panicky, keep social distancing and follow the health protocols issued by the government. Further, it was emphasized that every worker shall be provided wage-support at the respective places of work, with no need to move out. But that was not done. The migrant workers, who had been employed in some form in different states even before the outbreak of the pandemic, lost their livelihood supports from their employers, were forced to face tremendous uncertainty, and naturally tried to go back their respective homes in other parts of India. Large-scale distress and exodus after the lockdown were experienced by short-term and long-term circular migrants i.e. those who still considered their areas of origin as their primary or secondary homes. That is the migrant workers crisis that the Indian economy and society witnessed, with very pathetic consequences. But neither the Central nor the State governments could provide correct estimates of such displaced migrant workers, and therefore supports that were announced turned out to be meager and inadequate.

One should note that the genesis of migrant workers in different parts of the country and their informal nature was not contributed by the pandemic or the lockdowns per se, but largely by the pre-Corona economic performances and the policies thereof, and Corona pandemic displaced these workers and made them more vulnerable than before. What the Covid-19 crisis and the subsequent measures announced by the Government did, was to bring these migrants to the streets and made them displaced distressed, and vulnerable. The crisis further revealed the fact that the existing health infrastructure, mainly, in predominantly rural districts of states (where a majority of migrant labourers returned) had been inadequate in dealing with the increasing number of COVID-19 cases. Additionally, problems of household crowding, in the households of migrant workers, belonging to socially deprived and economically marginalised sections, lack of hand sanitizers and loss of job and wages, - all had pushed the returnees to a highly vulnerable position at the place of origin. Therefore, to argue that only adequate social protection policies be adopted to cover them would be missing the issue, because the prevailing social protection policies were not effective enough to prevent the displacement and misery of such migrant workers. There was an associated macro problem i.e., augmentation of unemployment for all types of workers. Such acceleration in unemployment was due to the interplay of number of factors, the most prominent and immediate being the paucity of aggregate demand. There is a need to expand public investment in creating infrastructure – rural roads, school building, health centres in rural areas – so as to create immediate employment opportunities for these displaced migrant workers on a large scale , while at the same time creating the base for a growing healthy India in the medium to longer runs.

There have been switching of occupations by some of the semi-skilled migrant workers in the informal sector, and some of them, who survived the initial Covid surge, have tried to return to their places of work, because of no additional work possibility at their home state or regions. They decided to return with the tremendous uncertainty about whether they would get back to the original work that they used to perform before their forced departure about three months before. Therefore, one should try to initiate macro-economic policies to supplement the micro- economic measures , and in this context, the debate between the State governments and the Central government regarding who would own up the initiation of such reforms in policies, be better avoided. There is also an urgent need for the skill mapping of the migrant men and women workforce – both new and old types- and register them for skill-based job opportunity, both in rural and urban areas in different states.

The crisis faced by a large segment of the migrant workers in the country following the imposition of series of lockdown after the outbreak of the Covid-19 virus in India, is indeed very large and require important policy interventions at the macro-level besides the different micro measures taken by the Central and the States' government from time to time. These measures include immediate augmentation of domestic demand among the poor households, expansion of the fiscal space of the government, and planning for growth creation and asset expansion at the micro level supported by public investment at the macro level. Only when such complementarities between the micro and macro policies could be worked out, we could find ways for moving ahead with a humane face.

***Inflation & External Sector***

Typically, in a recessionary environment, not only output and employment contract, but also the downward trend in the price level is discernible. In the Indian context, however, mainly due to structural reasons, we experience upward movements of prices, and the post-Covid shock period was no exception. Prices of essential commodities started rising mainly due to shortfall in supply , and there is noticeable rise in WPI based inflation. While it is not clear whether further recessionary trends would ensue along with spiraling inflation or not, the net effect of rising prices is to reduce the real purchasing power of the population, and this hurts the poorer section most. They would try to maintain their livelihood to some extent by reswitching their expenditures across items, but the overall effect would be to augment their miseries, let alone their savings potential if any. Further, inflation would also raise the domestic cost of our exportable, such that our competitiveness in the world market would be hampered. Already, because of the pandemic, the world economy is already in the downslide, such that external demand for our exports could not be revived so soon. The surge in the size of fiscal deficit would also have adverse effect on our trade deficit. The buoyancy in our external capital account to compensate the trade deficit may itself be temporary, and not relied upon as a signal for long term sustainability. A fresh relook at the policy options seem necessary at this juncture.

***Poverty***

Apart from the direct cost in human lives, the shock unleashed by the COVID-19 continues to spread economic disaster throughout the globe putting still more lives at risk.

The obvious channel of transmission of such economic disaster [slackening of growth trajectory, loss and contraction of employment, and hazardous health conditions—all together] happens to be accentuation of the incidence of poverty across the globe. It is estimated by the World Bank's (2020) report *'Poverty and Shared Prosperity'* that COVID-19 is expected to push some 100 million people into extreme poverty during 2020 alone. The pandemic-related job losses and deprivation worldwide have already hit the already-poor and vulnerable people most, by creating millions of "new poor.", who are more urban, better educated, and less likely to work in agriculture than those living in extreme poverty before COVID-19. Since the pandemic is deepening income inequality, threatening inclusive economic recovery and future growth, it is important to garner global response for thwarting the cumulative effects of the pandemic and its economic fallout. The report further confirms, *'The human cost of COVID-19 is immense, with hundreds of millions of people in the developing world reversing back into poverty. The report's projections suggest that, in 2020, between 88 million and 115 million people could fall back into extreme poverty as a result of the pandemic, with an additional increase of between 23 million and 35 million in 2021, potentially bringing the total number of new people living in extreme poverty to between 110 million and 150 million. Early evidence also suggests that the crisis is poised to increase inequality in much of the world. The crisis risks large human capital losses among people who are already disadvantaged, making it harder for countries to return to inclusive growth even after acute shocks recede'*.... Such an uneven impact means the crisis is likely to increase inequality within countries in the longer term, which, without preemptive action, may trigger large human capital losses among disadvantaged groups and make it more difficult for countries to generate inclusive growth in the future.

'[ Poverty and Shared Prosperity', World Bank,'2020].

After nearly a quarter century of steady global declines in extreme poverty, poverty reduction has suffered its worst setback in decades, thanks to the pandemic propelled economic crisis. For many governments in developing countries, a practical challenge has been to provide monetary assistance to those most in need, for example, social protection payments to those who have recently become unemployed, either through direct payments or transfers from governments to people. COVID-19 has already prompted Chile, Peru, Thailand, and more than 50 other countries to expand their government-to-people cash transfer systems, but the tenor of the mood of the government of India has so far been to avoid direct transfer schemes, and instead call for schemes that might indirectly help the poor. In India, there is a sluggish record of poverty alleviation – both rural and urban, across the states of India with periodic fluctuations in the speed of poverty reductions. Since the 2000s, however, India has made remarkable progress in reducing absolute poverty. Poverty levels are estimated to have declined from 21.6 percent in 2011 to 13.4 percent in 2015 (at the international poverty line), lifting more than 90 million people out of extreme poverty. With 21 per cent of the population below poverty line, India's target was to bring it down to 10.95. But only six states seemed set for that but the remaining 24 were far from the target. Chhattisgarh was the poorest, with nearly 40 per cent of the population living below the national poverty line, followed by Jharkhand (37 per cent), and it is important to note that much of the poverty was concentrated in rural areas and low-income states. What the pandemic driven shock did was to augment the stock of poor, mainly through two channels, e.g. job loss of large chunk of working population to the pool of poor , and systemic rise in the retail prices of food-grains and other essential commodities since the initial promulgation of lockdown in late March 2020. Naturally, poverty reduction - both in the rural and urban areas, has received setbacks and calls for strategies to achieve the declared objectives of SDG by the 2030s. The misery has been compounded by the fact that India is also suffering from large scale multidimensional poverty emanating from poor conditions of health and nutrition, poor health infrastructure and access to it, and poor conditions of primary education, particularly prevailing in rural areas. Even in urban and semi-urban parts of India, the conditions of health infrastructure and educational infrastructure are not sufficiently tuned to the interests of common people and wards of poorer households even with some selected brand of privately run institutions. Therefore, looking at the performance of the India's health sector in the face of covid-19 shocks, and conditions prevailing in the sphere of education, one cannot rule out the need for large scale intervention by the government or public sector

**III. Strategies for Revival**

The package announced by the union finance minister on 14 May 2020 as a relief from the COVID-19 impact, tried to broaden support for micro-, small- and medium-scale industries, strengthen the agriculture infrastructure and creation of COVID-19 detection centre in the civil hospitals in the rural areas. But none of the schemes outlined in the said package addressed the need of immediate expansion of aggregate demand in the economy. There was no mention of the need for direct cash transfer to the poor as a means for not only their survival or sustenance, but also to augment domestic demand base for mass consumption goods sector in the economy. Marginal expansion of the amount allocated under the MGNREGA schemes are likely to be unproductive because the different state governments , by and large have not prepared the detailed schemes of work that the additional workforce could be effectively engaged under this scheme.

Certain features of the detailed revival package announced by the Government may be noted. First, the detailed package is a narration of some projects and schemes that were either currently in operation or their enhanced allocation like the Prime Minister's Schemes with additional support, but they do not connote to any shift of policy at the macro level. The rider is that as and when the newly announced allocations are actually made available, the new projects or the old projects with additional allocation, will start operating, with effects on both supply and demand sides and the resultant impact on the economy's drive to recovery is likely to be slow. Secondly, none of these schemes outlined in the so-called revival package , except the allocation in MGNREGS , have any direct bearing on the improvement of the conditions of displaced migrant workers, and therefore job expansion and poverty reduction have received backseat in the scheme of things conceived by the central government. How would the ***new poor*** be alleviated above the poverty line? There seems to be no answer, except hoping for the ***long run***. Thirdly, most of the schemes related to the rejuvenation of India's manufacturing sector are loan based, and their success depends on the changes in the banking and financial sectors of the economy. If the loan rate of interest chargeable by banks are reduced to encourage the disadvantageous MSMEs to taken more loans for the purpose of expanding production, then the rate offered to the savers have to be slashed and the RBI in tune with the thinking of the Finance Ministry is precisely treading that path. The problem with this approach is that it not only inconveniences the senior citizens or retired persons, but also discourages national saving, which is anti-growth. Moreover, such a loan based strategy, to be successful, would warrant more loan takers, which has not been the case in the aggregate as the economy itself has been in the downturn and prospects for quick recovery and the consequent rise in profitability, seem dim. Thirdly, any strategy based on loan, even if all the above mentioned frictions are not there, would require the output to grow much faster than the average, such that the loan could be repaid from enhanced future income stream. Such an assumption in the pandemic-stricken Indian economy is really heroic and unfounded on facts and trends. Loan based programmes are not additional support pushed into the economy, it may at best indicate some ways of circumventing the resource constraint, particularly finance.

What then is the real alternative escape route? While the rest of the world- or at least the major developed economies – are expanding the scope of the government sector to initiate a turn- around, India is blindly following the dictates of the old parable of the neo-liberals, viz, ***market, market and that is the Moses.*** It is important to realize that even the major protagonist of market based reforms, namely the World Bank has now realized that the role of the government is very important to alleviate poverty and deprivations, particularly in expanding the capabilities of the social sector, in the form of broadening the social safety nets for the poor and the vulnerable. And it is important for the government or the public sector to spearhead our drive towards meeting the goals of sustainable development (SDG) within the stipulated time frame. A difficult choice awaits the government in reviving the economy versus maintaining the limits on fiscal deficit as prescribed by the FRBM act. Alleviating the hard hit people from their miseries and in-built deprivation in the post-pandemic scenario should be the top priority of the government.

India often excels in coining rhetoric. We had coined **Sab Ka Sath Sabka Vikas** as the epitome of inclusive development, and on this count we have failed comprehensively, as the extent of inequality in all dimensions have been rising during the last decade or so. Similarly, in the context of the Pandemic driven distress in the Indian economy, and our quest for way out, we have nicely coined the strategy of ***Atmanirbhar Bharat***. This term connotes to a wonderful opportunity to revive and rejuvenate the Indian economy. It must be understood that banning few Chinese Apps and replacing the space by US or Korean Apps are not sufficient to achieve ***Atmanirbhar Bharat***. Where are the indigenously made Indian Apps fulfilling the entire requirements of the Apps users in India? Nor is it sufficient to add to the stock of our military equipments and claim that we are now self sufficient in defense sector, because most of the recent additions are imports. Even if new defense equipments are produced in India's public sector, either through better utilization of existing capacities or through additional investments, the macroeconomic impact of such investments in the defense sector are likely to be small and marginal. We need massive volume of public investment to achieve the target of self-sufficiency that the term ***Atmanirbhar*** actually connotes to.

The word atmanirbhar means self-sufficiency, and in the economic discourse there had been a vast literature on self-sufficient import substituting industrialization as a strategy of development for the developing economies. Such a strategy, in its various forms, were pursued in many developing nations including India during 1950s through to 1980s, perhaps using the 'infant industry' argument for protection. There are several difficulties and costs associated with the adoption of such an import substitution policies as the Indian experience amply demonstrates. In general, the basic problem boils down to the fact that the infants often refuse to grow and pressurize for the continuation of protection in various forms, and often such pressures are difficult to be sustained on pure economic grounds. That does not, however, mean that no indigenous industry or corporate could grow during such protected regimes and there are plenty of evidences of this fact too. Since 1991, Indian economy has moved with a shift of its development paradigm in favour of economic liberalization which gives maximum emphasis or support to market based reforms. However, such a shift to the liberalized economic policy regime does not mean that the commanding heights or the basic industries and institutions have to be necessary closed or sold off, giving space to the private sector only. In fact, the greatest protagonist of market based reform, the World Bank, has been propagating the important role of the government in mitigating poverty and deprivations in the social sector of the economy, not only in India, but also in other developing countries, while maintaining the basic framework of economic liberalization.

The first thing to do is to identify 100% indigenous products and sectors where there is no dependence on foreign resources or technology. Such products may be supported by domestic demand as well as export market, and the latter is dependent on product quality as well as competitiveness. If you assemble goods in India using materials and technology from abroad and are imported, and claim that everything is the outcome of *Make in India* initiatives of the Government of India, there is hardly any serious progress towards *Atmanirbhar Bharat*. One needs to identify the products and sectors whose growth would make the country self-sufficient in the real sense of the term. Agriculture is one such sector, social sector is another. For the social sector- education and health, first thing needs to be addressed is to spread the education and health infrastructure to all the villages and taluks of the country and, this can be combined with expansion and extension of rural roads and connectivity. A National Construction Authority in the public sector could complete these tasks in a time bound fashion. All these activities can be initiated by massive investment by the state, which will generate both short run and long run demand linkages essential for reviving the growth trajectory of the economy, which had been badly hit by the pandemic and lockdowns. May be at the next stage, state should take the initiatives to provide human capital- trained personnel, i.e., doctors , teachers and other supporting staffs throughout India to man these rural health centers and schools , with provisions to provide nutrition and vaccination to the new born babies at the remotest places, and keep records of the progresses. Similar public investment driven growth can be initiated to upgrade and make our agricultural sector more vibrant and growing. Such an approach would do away with the *ad hocism* in policy planning, contractor-raj in execution and associated ills for which our efforts since the 1980s did not succeed in various parts of India, despite massive flows of monies from the government exchequer .A relook at the macroeconomic policies of the Government with a vibrant and directed public sector can be combined with liberalized economic regime, now in operation in India. It may be argued that inclusive growth, i.e., growth acceleration with distribution directed towards the bottom layers of the distribution, can be ensured through such a process within a stipulated time frame. It is not enough to augment aggregate demand in both the short and the long run, the even distribution of such aggregate demand across sectors and between states are also important for reviving the economy from the morass of the Covid-19 pandemic, and make the process tilted towards more inclusivity.

India transitioned from a period of slow growth of 3.5% of its gross domestic product (GDP) in the early decades since independence to one of the fastest growing countries of the world in the 2000s. After the start of the liberalisation of the economy in 1991, the pace of growth picked up to 6.4% in the next two decades and possibly doubled the average productivity and living standards in just 16 years. However, the prolonged lockdown caused by the COVID-19 pandemic has led to the further worsening of the Indian economy, which was already suffering from a lackluster performance prior to the lockdown, notwithstanding with what the official data often try to project. The aggregate GDP growth number may, however, actually hide the heterogeneity in growth rates of different income groups of the population. Income and consumption share data for the 20-year period 1991–2011 shows that there exist large differences in the growth rates for various deciles of the income distribution. These differences have led to sharp increases in income and consumption inequality, a finding which is consistent with earlier studies (Mazumdar et al 2017; Basole and Basu 2015; Anand and Thampi 2016).Such high income inequalities often influence India's low human development scores. The HDR 2020 shows that the richest 1% of India's population held 21.3% of its total income, while their share was only 17.7% in developing countries and a lower 15.1% in advanced economies. Among BRICS (Brazil, Russia, India, China, and South Africa), the share of the top 1% was only 13.9% in China, while that of Russia was similar to India. Only Brazil topped India with its share touching 28.3%. All this clearly shows that India's HDI score has been badly pulled down by gender and income inequalities, which makes it an outlier among both its peers and neighbours.

India is a land of uneven development and inequality. This is true of inequality in income and consumption. Consumption inequality has grown 14% and income inequality has grown 5% since 1960. Consumption inequality rose by 9% as compared to a 1% increase in income inequality over the period 1991 to 2011. These differences can attributable to the difference in growth rates amongst each decile for both income and consumption. According to the *World Inequality Report*, 2019, in India, the top 10% income share grew from 30% in the 1980s to over 56% in 2019 following economic reforms of deregulation and liberalization. In contrast, the top 10% share in China grew from 28% to 41% in 2019. The lower rise of inequality in China was associated with stronger growth rates and much faster poverty eradication than in India, showing that more economic growth need not necessarily mean increased inequality. According to the *Global Inequality Report (2020)* released by Oxfam International, India's richest 1% hold more than four-times the wealth held by the bottom 70% of the country's population, and that the combined total wealth of 63 Indian billionaires is higher than the total Union Budget of India for the fiscal year 2018-19 which was at Rs 24,42,200 crore . All these above connote to a pre-pandemic scenario, the situation worsened dramatically since the onset of pandemic and the lockdown that followed. According to Oxfam's *'Inequality Virus Report, 2021'* released on the opening day of the World Economic Forum in Davos, Indian billionaires increased their wealth by 35% during the lockdown since March 2020 to Rs 3 trillion. The report underscored the deepening inequality due to Covid-19 where the wealthiest escaped the worst impact of the pandemic while the poor faced joblessness, starvation and death. It recommended reintroducing the wealth tax and effecting a one-time COVID-19 cess of 4% on taxable income of over Rs.10 lakh to help the economy recover from the lockdown. According to its estimate, wealth tax on the nation's 954 richest families could raise the equivalent of 1% of the GDP of India.[Oxfam, 2021]. Banerjee and Maheswari (2020) argue that the aggregate GDP growth rate may approximate an accurate picture of the economic growth only in the top half of the income distribution, but not of that in the bottom half . Interestingly, the growth rate of the top decile of the income distribution stands at 6.27%, which is slightly lower than the average growth rate in the economy. Thus inclusive growth has become illusory as a large segment of our population has been left out from the growth process. If we need to combine the objective of *atmanirbhar bharat* as a strategy for revival from the Covid- caused morass in the Indian economy, with idea of *inclusive growth*, then the revival strategy should be geared to the expansion of the production base of the economy in the areas where the poorer unskilled and unemployed labour force are capable of being productively employed. Redistributive progressive taxation of the super rich could be an essential pre-requisite for such a strategy of faster and inclusive growth.

## VI. Conclusion

Covid-19 pandemic has shattered the Indian Economy in many dimensions, and in an economy which had been sliding since 2016 because of several factors , recovery to the pre-pandemic position seems extremely difficult, and slow. Revival package to be effective should be focused and timely interventions could have saved many disorders and disequilibria in the economy. In the Indian context, the revival strategy be based on data integrity, policy consistency and balancing of short run and long run objectives. It is important to recognize the importance of imparting a demand stimulus to the economy, the moot question is whether such augmentation of domestic demand would be totally investment driven or direct consumption driven. In the former case, the impact on the revival path of the economy will be there for somewhat longer time period, while in the second case of pure consumption driven growth, redistributive taxation in some form will be required to affect the importance of demand generation through reduction of inequality in the distribution of income and wealth.

The World Bank's (1990) *World Development Report* and the UNDP's (1990) *Human Development Report* captured the consensus that not only is growth necessary for poverty reduction but that growth and equitable distribution of growth can indeed go hand in hand-all that is needed are the right policies. The World Development Report1990, in particular, put forward a two-pronged strategy which seemed to resolve the conflicts highlighted in the earlier literature-the two prongs being labor-demanding growth based on private sector incentives, and public investment in basic education, health and infrastructure, these two prongs to be supported by social safety nets to protect the very poor and vulnerable. According to Banerjee and Moll (2010) under-development may be a consequence of the misallocation or misuse of available resources. In a world where financial markets fail to perform efficient allocation of scarce resources like capital as in most developing countries, the distribution of wealth across income groups does not induce efficient investment so that potential loss in productivity is very large. In the absence of effectively functioning asset markets the distribution of wealth matters for efficiency as inefficient asset markets depress total factor productivity (TFP) by not allowing efficient firms to grow to the size that they should achieve, and by allowing inefficient firms to survive by depressing the demand for factors (good firms are too small) and hence factor prices. On the other hand, if savings is interest-elastic, there may be under-investment by more people due to lack of enough credit or insurance when there exists wealth inequality. To compensate for the lack of investment demand from the poor, the rich would have to demand more capital, requiring interest rate to go down, which would adversely affect aggregate savings and investment and thereby slacken growth prospects.

It is better that we follow these warnings carefully while devising our short run and long run policies for the revival of the pandemic-stricken economy, which was ravaged during the last one year creating a vicious cycle of inequality, frustration and discontent across generations.

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# Effect of the Covid-19 pandemic on the Zari workers of Panchla, Howrah:

# A Brief Study on Their Struggle for Survival.

**Arpita Mandal Nandi*[1]**

## Abstract

There are more than 5 lakh Zari workers in the district of Howrah, and quite a significant cluster in the small town of Panchla to be mentioned. The lockdown during the Covid-19 pandemic has made these artisans unemployed. They have been severely affected as the sole source of their subsistence was based on weaving arts with zari. This has been severe mostly because almost all of the family members have been involved in weaving zari. The lockdown during the Covid-19 pandemic has made these artisans unemployed. They have been severely affected as the sole source of their subsistence was based on weaving arts with zari. This has been severe mostly because almost all of the family members have been involved in this industry. This study was conducted by collecting primary data from 137 households directly engaged in the business of the zari sector located in Panchla block of Howrah district of West Bengal. For the purpose of the study different statistical tools like descriptive statistics, factor analysis and multiple regressions have been used. Case studies were taken to capture the various aspects of their survivality during this pandemic period. The situation is quite alarming in this area. The zari workers are facing huge crises during the pandemic. Many have enrolled themselves in the "Eksho diner kaaj" ( 100-days job ) provided by the State Government of West Bengal. The free distribution of ration after the effect of Amphan has somehow helped them survive.

The plight of the zari workers will require much time to be restored back to the pre-covid days. The government and the NGOs will have to come up with rehabilitation programmes to help the zari workers and their families.

**KEY WORDS : Zari Workers, Source of subsistence,Multiple Regressions**

**JEL Classification Codes:**

## I. Introduction

There are more than 5 lakh Zari workers in the district of Howrah (Saha, 2015), and quite a significant cluster in the small town of Panchla to be mentioned. The lockdown

1. Principal,Panchla Mahavidyalaya,Howrah.

during the Covid-19 pandemic has made these artisans unemployed. They have been severely affected as the sole source of their subsistence was based on weaving arts with Zari. This has been severe mostly because almost all of the family members have been involved in weaving zari.

More than 5 lakh people's economy depends on the zari industry in several clusters of Panchla, Amta, Udaynarayanpur, Sankrail, Domjur, Bagnan and Shyampur blocks of the district of Howrah (The Telegraph, July 19, 2013). This has increased manifolds until the lockdown in 2020. The figure hence in itself suggests how many people have lost their jobs and are in severe crisis.

This study was conducted by collecting primary data from 137 households directly engaged in the business of the Zari sector located in Panchla block of Howrah district of West Bengal. For the purpose of the study different statistical tools like descriptive statistics, factor analysis and multiple regressions have been used. Case studies were taken to capture the various aspects of their survivality during this pandemic period.The situation is quite alarming in this area.

As the situation of Zari and Gems & Jewellery industry has deteriorated in India in recent times, Government have to take initiative to improve the condition of these industries for the better performance. These industries are facing the fund problems also, especially the Zari industry in West Bengal (Ghosh,2020). This sector need more boost up especially in case of capital assistance to meet the requirement. There is no doubt that these industries are very much effective in employment generation, but Government initiative should be made to stabilize these industries (Dhar and Saha,2016).

The Zari industry of Howrah has a long history and a rich heritage. With the sudden announcement of demonetization this sector started facing a lot of problems and the introduction of the GST added more to their problems. The 18% tax on embroidery in the regime of GST , brought in trouble for the zari workers as well as the middlemen. This affected the supply of raw materials from Ahmedabad and Surat, hence reducing the supply of sarees from the wholesale markets of Burrabazar and Metiabruz.

Earlier Zari industry was considered as cottage industry and was exempted from VAT and Sales tax. So, the Zari workers were already in trouble before the complete lockdown of 2020, which further devastated the lives of these artisans. Unemployment began when wholesalers who give the workers orders through the middlemen struggling with GST taxes which has made them stop orders to workers.

This paper is a preliminary study casting a cursory glance at the factors that affected the wages and the state of livelihood of the Zari workers during this Covid 19 pandemic. Focus has been given on the nature of employment, educational status, technical education or training if any.

## II. Aims and Objectives

This paper aims to bring about the problems of the Zari workers during this pandemic and suggest some measures for the improvement of their lives and livelihood. The objectives of the present study are :

1. To see the present status of the Zari industry in Panchla, Howrah.

2. To identify the factors influencing the employability in the Zari industry of Howrah.

3. To identify the factors influencing the Zari industry during this Covid-19 Pandemic.

### Area of study

In West Bengal, Howrah district is the hub for Zari industry. There are around 14 blocks in Howrah, of which Panchla, Amta I and II , Udaynarayanpur , Sankhrail, Domjur, Bagnan and Shyampur blocks are worth mentioning. This study has been made in the Block of Panchla for the convenience of collection of data.

## III. Materials and Methods

This study has been conducted based from primary data. Data has been collected through a prepared questionnaire and interview method was applied to the respondents from 137 households of Panchla block of Howrah. The Socio-economic aspects that were mainly affected due to the Lockdown during Covid -19 pandemic of 2020 was the main focus of the study. The effect of the employment status, education, training of craftsmanship, gender and age were mainly considered in this study and their effect on wages or earnings have been checked through percentage, frequency distribution, and correlation. This way an overview of the condition of the Zari workers of Panchla have been tried to recapitulate.

The questionnaire used in this study had a 6 points rating scale. Different reports on the zari workers published in news bulletins or as online reports , have been used as source of Secondary Data. As the workers face similar conditions, average method has been applied to draw the results. Drawing an overview of the socio-economic condition of the workers, the issues of the zari workers have been recapitulated in a descriptive manner. Data have been collected from August 2020 to December 2020.

To study the effect of employment status, education, training, gender, age etc. on earnings, percentage, frequency distribution, central tendency, correlation were applied. Due to the similar condition of most of the labourers average method has been used to draw the results. Figures are shown in percentage of total 137 households of Zari-workers. The problems of Zari-workers could be recapitulated in descriptive manner after an overview of their socio-economic condition.

## IV. Results and Discussions

Men are heads of the families in more than 63.61% of the participants in this study and for them this is their main occupation. Women are mostly temporary workers (6.33% as in Table 1) in most of the families making 11.93% of the total household participants. In contradiction to the study of Mehta and Sherry (2009), children below the age of 16 years are less or not engaged in this occupation. Zari worker participants in this study belong to the other backward classes in both the Islam and Hindu religions (56.43%). Only 19.11% belong to the General category of both the religions. There were no representations from the scheduled caste or scheduled tribe categories. Participants in this study belong to 69.17% Islam religion while 4.44% are Hindus and only 1.93% belong to other religions. Most workers (75.54%) are permanent artisans which means they have taken the work of weaving zari as their main occupation, on the other hand about 24.46% are temporary workers who take up weaving zari only after fulfilling their primary occupations. This handicraft work is done as family job work and therefore family members contribute together to complete a work.

As represented from Table 2, educational qualification of the participant zari workers in this study is found to be quite low. 46.29% could get primary education. Secondary education could be completed by 13.36% of the workers while only 10.94% qualified Higher Secondary education. About 21% workers are totally illiterate. The participant workers in this study lack any type of technical qualification.

A very positive and bright side of the economical condition of the workers are that about 69.23% (Table 3) of households are living in their own houses. This helped them to fulfill the basic needs of life. Only 30.77% live in rented house. The houses were brought down to them as paternal assets. The artisans mainly do their work in their houses. But, most of the houses are not in good condition and light sources including natural light are limited. The amenities consumed are not up to the mark either. 67.25% households had access to clean drinking water. About 11% still live without electricity. The worst part of their amenities aspect is the sewage system. About 55% households do not have proper sewage system.

Table 4 reflects the average monthly income and expenditure of the participant workers in this study before the Lockdown for Covid-19. The zari workers live mostly on subsistence wages. They are mostly exploited by the middle-men as the workers often fail to bargain properly. They do not have fixed rate for a particular work type. These are the reasons why even after involvement of most of the family members in the job, they fail to uplift their financial condition.

Average family monthly income of 9.31% of the households is less than Rs. 5000/- . 53.78% households earn in between Rs 5001-Rs.10000/-. The lower share of households could attain higher income levels like 16.42% workers earn between Rs. 10001-Rs.15000/- ; 13.71% households could make between Rs.15001-Rs. 20000/- monthly. Different family size may reflect in their per capita income with varying intensity. According to Keynesia's law, it is well known that, the marginal propensity to consume is higher at lower income levels, bringing down the difference between income and expenditure. This has been so truly found in the present study as well. The average monthly expenditure of about 34.63% households lie between Rs. 5001-Rs.10000/-. There are 29.47% households earning and spending within Rs.5000/- only per month irrespective of family size. 8.42% households have their monthly income and expenditure in between Rs.10001- Rs. 15000/- . About 7.31% households have their earnings more than Rs. 15000/- monthly.

Table 5 depicts the average monthly income and expenditure of households of the Zari workers during and after the pandemic lockdown. About 47.21% of the households have had their monthly income less than Rs. 5000/- and 42.78 % of the households have shown expenditure below Rs. 5000/- per month. This was followed by 28.51% households earnings Rs. 5001-10,000/- per month and 34.53% households had their monthly expenditure in between Rs.5001-10,000/-. 11.36% of households could still earn Rs. 10,001-15,000/- monthly and 7.50% households earned Rs.15,001- Rs.20,000/- per month. Meager percentages of households like 1.97% had their earnings in between Rs. 20,001- 25,000/-,followed by 2.31% earning 25,001-30,000/- monthly while 1.14% earning above 30,000/-.

While considering the monthly expenditure, 14.35% households kept their expenditure, to 10,001-15,000/- monthly and 8.34% expenditure is seen in Rs.15,001- 20,000/- monthly. A very striking point seen here is that, households earning above 20,000/- monthly could show some savings from their income. We have no families that had the some expenditure in Rs. 20,000/- and above income.

While comparing the income of the households before and after the lockdown as seen in Table 6, significant differences were seen in all the categories of the income. The significant levels were as high as $p<0.001$ and $p<0.01$ levels.

Considering the comparison of the expenditure of the households in study, as referred from Table 7, highly significant levels could be seen at $p<0.01$ and $p< 0.001$ levels.

The Zari workers in this study show very little savings due to irregular and low income level. About 42.78% of the workers do not have any emergency funds as they are not able to save any money. 0.17% workers could save a small amount as less as Rs. 1000/- per month. This is one of the main reasons for their inability to bargain properly to the middlemen.

**Discussion** The Zari workers of Panchla, have no access to any credit facility. No participant in this study got any loan from any funding agency. The only assets most of the families possess are their houses which are to a bigger extent their ancestral property having very low value. It is usually the head of the family or the elder son who gets the job-work from the middlemen or the wholesaler at per piece wage-rate. Zari work is very much dominated by men and in this study, it was found that women were less interested to do independent work. They take up this work only to help the men finish their working time. Women sit to help out men in their jobs only after completing their household chores. As seen in this study (Table 1), men are 63.61% of the permanent workers while women are only 11.93%. Children below the age of 15 years show very less presence in this job.

Zari work was flourishing in the last decade in the different blocks under the district of Howrah. It was then affected by the introduction of the GST. The supply and demand dropped down and there was threat of unemployment or under-employment. The middle-men had started cutting off the wage-rate. Then this industry received a great blow and set back with the Covid-19 pandemic lockdown. The workers lost work and had to suffer heavily during this phase. Though not skilled or trained professionally, the workers have learnt this zari –weaving from their families, by observation and practice. They have never ever tried their hands in any other kind of work. During lockdown, their lives were simply shattered. The workers however could just survive on the free ration distributed by the West Bengal state government and many could get themselves a job-card for the 100 days work. Doing odd jobs as labourers at least helped them survive. Most of the workers had their own account enterprises with their family members in this zari industry. Low skill and heterogenous productivity were the main reasons for their lower earnings. This was also found in a study conducted by Sen (2020). This study also found that the lesser educated were in better position to gain work in this field as compared to the graduates or higher degree holders. This finding correlates with a study conducted by Bairagya (2018). The educated were found to have less opportunities because they were unwilling to do casual jobs, informal jobs and helping family members in such household enterprises. Similar findings were there in the studies by Bairagya (2018), Panchappa ( 2019), Shatz (2015) and Choudhry ( 2020). All agree that vocational training and capital formation are very essential for creating job opportunities for both the educated and the under-educated labour force. Professional training and investment might boost the productivity across this sector. Sahoo (2019) in his study also agree to the fact that productivity becomes the main factor in determining the wages. While Gielen (2010) suggest performance related pay system. Bjuggren (2018) and Sahoo ( 2019) agree that employment protection rules can bring about an impact in the zari weaving industry all across.

## V. Conclusion

The zari industry of West Bengal has suffered quite a lot during recent times and has been hit very hard during this Covid-19 pandemic. There are fund problems in this sector especially in the Panchla Block of the district of Howrah. As this sector has the potential to generate employment , government initiatives should be made to stabilize this sector. This industry is mainly operated by unorganised sector, so far as the information derived with the interaction with the zari workers at the time of collection of Primary data. The major challenges like inadequate training and access to information, lack of awareness about Governmental programs and work-family interface are ranked by the weavers.

**Limitations of the study**: This study could only be conducted among the zari-workers of the Panchla Block in the district of Howrah. This was because of the continued effects of the pandemic and the author had limitations to move around in the restrictions thrown by the Covid-19 situations. The studied sample is also small in size for data analysis but however it brings about a preliminary picture of the present conditions of the Zari workers of Panchla. This study provides a roadmap for further investigations in this sector. Participants were not much enthusiastic and were instead much pessimistic about the outcome of such study. It was quite difficult to convince the respondents for the purpose and efficacy.

**Table 1: Demographic classification of the zari workers according to employment status (in percentage).**

| Employment Status | Gender | | Total | Religion | | | Total | Category | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | | Hindu | Islam | Others | | OBC | Gen. | |
| Permanent artisans | 63.61 | 11.93 | 75.54 | 4.44 | 69.17 | 1.93 | 75.54 | 56.43 | 19.11 | 75.54 |
| Temporary artisans | 18.13 | 6.33 | 24.46 | 3.33 | 21.13 | 0.00 | 24.46 | 22.74 | 1.72 | 24.46 |
| Total | | | 100 | | | | 100 | | | 100 |

**Table 2: Educational qualification of the Zari workers ( in percentage).**

| Category | Gender | | Total | Religion | | | Total |
|---|---|---|---|---|---|---|---|
| | Male | Female | | Hindu | Islam | Others | |
| Illiterate | 17.31 | 3.69 | 21.00 | 4.25 | 15.75 | 1.00 | 21.00 |
| Primary | 42.16 | 4.13 | 46.29 | 34.17 | 12.12 | 0.00 | 46.29 |
| Secondary | 11.17 | 2.19 | 13.36 | 8.67 | 4.69 | 0.00 | 13.36 |
| Higher Secondary | 8.19 | 2.75 | 10.94 | 9.17 | 1.77 | 0.00 | 10.94 |
| Graduate | 7.31 | 1.08 | 8.39 | 6.93 | 1.46 | - | 8.39 |
| Post Graduate | 0.00 | 0.00 | 0.00 | - | - | - | - |
| Others | 0.00 | 0.00 | 0.00 | - | - | - | - |

**Table 3: Access to the Physical amenities of the Zari workers**

| Amenities | Percentage of households |
|---|---|
| Owned house | 69.23 |
| Rented house | 30.77 |
| Electricity | 89.31 |
| Clean drinking water | 67.25 |
| Sewage system | 44.23 |

**Table 4: Average monthly income and expenditure of households of the Zari workers before Lockdown**

| Average family monthly income ( in Rs.) | Household percentage | Average monthly expenditure | Household percentage |
|---|---|---|---|
| Less than 5000 | 9.31 | Less than 5000 | 29.47 |
| 5001-10,000 | 53.78 | 5001-10,000 | 34.63 |
| 10,001-15000 | 16.42 | 10,001-15000 | 8.42 |
| 15,001-20,000 | 13.71 | 15,001-20,000 | 7.31 |
| 20,001-25,000 | 2.60 | 20,001-25,000 | 0.17 |
| 25,001-30,000 | 2.88 | 25,001-30,000 | - |
| Above 30,000 | 1.3 | Above 30,000 | - |

**Table 5: Average monthly income and expenditure of households of the Zari workers during and after Lockdown**

| Average family monthly income ( in Rs.) | Household percentage | Average monthly expenditure | Household percentage |
|---|---|---|---|
| Less than 5000 | 47.21 | Less than 5000 | 42.78 |
| 5001-10,000 | 28.51 | 5001-10,000 | 34.53 |
| 10,001-15000 | 11.36 | 10,001-15000 | 14.35 |
| 15,001-20,000 | 7.50 | 15,001-20,000 | 8.34 |
| 20,001-25,000 | 1.97 | 20,001-25,000 | - |
| 25,001-30,000 | 2.31 | 25,001-30,000 | - |
| Above 30,000 | 1.14 | Above 30,000 | - |

**Table 6: Comparison of the average family income before and after lockdown**

| Average family income | Household percentage before lockdown | Household percentage after lockdown | t |
|---|---|---|---|
| Less than 5000 | 9.31 | 29.47 | 0.974*** |
| 5001-10,000 | 53.78 | 34.63 | 0.983*** |
| 10,001-15000 | 16.42 | 8.42 | 0.953** |
| 15,001-20,000 | 13.71 | 7.31 | 0.942** |
| 20,001-25,000 | 2.60 | 0.17 | 0.972*** |
| 25,001-30,000 | 2.88 | - | 0.017*** |
| Above 30,000 | 1.3 | - | 0.031*** |

***=p<0.05, **=p<0.01, ***=p<0.001**

**Table 7: Comparison of the average family expenditure before and after lockdown**

| Average family expenditure | Household percentage before lockdown | Household percentage after lockdown | t |
|---|---|---|---|
| Less than 5000 | 9.47 | 42.78 | 0.976*** |
| 5001-10,000 | 54.63 | 34.53 | 0.946*** |
| 10,001-15000 | 18.42 | 14.35 | 0.874*** |
| 15,001-20,000 | 17.31 | 8.34 | 0.816** |
| 20,001-25,000 | 0.17 | - | 0.091** |
| 25,001-30,000 | - | - | - |
| Above 30,000 | - | - | - |

***=p<0.05, **=p<0.01, ***=p<0.001**

**Case studies:**

1. Sk. Nadim, 32 years, Male, in zari weaving for 13 years. He is a temporary artisan earning between Rs. 10,000- Rs 17,000/- as family income before the onset of lockdown of Covid-19 pandemic. This could increase to an amount of nearly Rs. 22,000/- to nearly 22,000/- during festive and marriage seasons. His is a family of 8 members, wife, three kids ,both parents and a widowed sister. His wife and sister help him in weaving when required or when workload gets heavier. He started facing financial issues with the introduction of GST and the lockdown brought a stop to his work. He and his wife both could enroll themselves in the 100 days job card through the local Panchayat. His family could survive this crisis by availing free ration distributed by the West Bengal State Government. He did some irregular jobs like catching fish and serving catering in gatherings.

2. Md. Alamgir, 51years, Male . He is a permanent zari –worker .He is working since the age of 12 years. His family earning was nearly Rs. 20,000/- monthly in pre – covid times. He has 2 sons who worked in Mumbai. During lockdown they lost their jobs and were forced to return back home in Panchla. Alamgir has no work now. He has developed poor eyesight and it gets very difficult for him to weave. He suffers from Asthma. The family of 11 members could survive on free ration provided by the State Government. His elder son,28 years old has a job card of 100 days and the younger son has started working in a grocery shop earning around Rs.120/- per day. The elder son sometimes works as labourer under a construction contractor.

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# Ecotourism – A Panacea For Rural Hill economy: A Case Study

**Yojna Kharga[1]**


## Abstract

Ecotourism which is a 'responsible travel to natural areas' channelizes economic benefits to the local population and creates incentives for conservation. It is also linked to pro-poor tourism as it helps poor people acquire a new identity of livelihood. Natural, protected, under-visited, pristine, wild, relatively under-developed, uncontaminated, and relatively undisturbed are words used to describe places in which ecotourism is said to thrive. Most of the rural areas in the hill regions of Darjeeling district just meet these requirements which shows the enormous potential it has for the establishment and development of ecotourism as an alternative means of livelihood at times when the agricultural production is dwindling along with indiscriminate exploitation of natural resources and migration of agricultural labour to urban centers, due to the requirements of the people going above subsistence. Using Echhey Gaon, a forest village under Munsong Gram Panchayat in the subdivision of Kalimpong, Darjeeling district, this paper investigates the potential that the rural areas have for promoting ecotourism that could stimulate economic development by empowering local people with the income earned and employment generated through ecotourism activities. This not only boosts local economies but also encourages conservation of the natural resources as their maintenance and safeguard forms the basis for earning revenue which otherwise would have been destroyed for the same. Further, the potential this area has could be taken to a higher level with proper planning, use of modern technology like internet, professional marketing to take full advantage of its multiplier effect.


**Keywords: ecotourism, nature, employment, agriculture**

**JEL Classification Codes :Z32, O18, Q57.**

## I.Introduction

Ecotourism has been defined by The International Ecotourism Society as 'responsible travel to natural areas which conserves the environment and improves the welfare of the local people'. It is directed towards exotic natural environments intended to support conservation efforts. Similarly, the UN World Tourism Organization has defined ecotourism as " travelling to relatively undisturbed natural areas with the specific objective of satisfying, admiring and enjoying nature and its wild plants, animals as well as existing

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1. Assistant Professor of Economics, Kalimpong College

cultural aspects (both past and present) found in the areas. Ecotourism is about uniting conservation, communities and sustainable travel.

This means that those who implement and participate in ecotourism activities should follow the following ecotourism principles:

1. Minimize impact
2. Build environmental and cultural awareness and respect
3. Provide positive experience for both visitors and hosts
4. Provide direct financial benefit for conservation
5. Provide financial benefits and empowerment for local people
6. Raising sensitivity to host countries' political, environmental and social climate.

Rural hill economy has stagnated due to its overdependence on limited productivity of the marginal farmers which has started depleting. The agricultural activities that take place in the isolated terraced slopes with hard labour and toil is getting less remunerative over time. This problem of low productivity has been compounded by general movement of agricultural labour to urban centers in search of better employment opportunities. This has generated a cause and effect situation for dwindling agriculture due to lack of agricultural labour.

Natural, protected, under-visited, pristine, wild, relatively under-developed, uncontaminated, and relatively undisturbed are the words that have been used by several authors in their definitions of ecotourism. Most of the rural areas in the hill regions of Darjeeling and Kalimpong districts just meet these requirements which show the enormous potential it has for the establishment and development of ecotourism. At times when agriculture is becoming less attractive in terms of remuneration and the natural resources in the region are getting exploited in rampant proportions to meet the requirements, of the locals, that have gone above subsistence, ecotourism could come as win-win remedy for boosting local economies as well as conservation of natural resources. The income of the villagers coming from agricultural activities, daily wages and remuneration of migrated family members can be supplemented with ecotourism activities like homestays, conduction of treks and other related activities. The prosperity of ecotourism directly depends on the richness of natural resources of an area. This implies that ecotourism provides effective economic incentives for conserving and enhancing bio-cultural diversity and helps protect the natural and cultural heritage of a particular region. The process of extensive exploitation of natural resources for sustaining livelihoodof the growing rural population is converted into its preservation and safeguard for the same. Moreover, with time the locals can reap benefits from the so called "ripple-effect" ecotourism and related activities can have on the economy.

Ecotourism has also been linked to pro-poor tourism which "is an innovative idea in tourism sector that has been introduced to strengthen economic well-being of communities. It emphasizes work participation of poorer people of the society, makes them engaged in employment and self-help sector and establishes a synthesis between development of tourism by upgrading the degree of livelihood status of poor people so that poverty eradication is possible and socio economic status of poor people is improved. Ecotourism in the rural areas gives a chance to locals to participate in the tourism activities which in turn strengthen their financial status. Hence, by increasing local community capacity building and employment opportunities, ecotourism is an effective vehicle for empowering local communities to fight against poverty and achieve sustainable development.

## II. Objectives of the study

The objectives of the study are:

1. To assess the potential of ecotourism in virgin areas in rural hill regions of Kalimpongdistrict.
2. To offer suggestions for exploiting this potential and taking it to a higher level.

## Study area

Echeygaon is a village in Kalimpong II CD Block in Kalimpong subdivision of Kalimpong District in the state of West Bengal. It is located at an altitude of 5800 feet above sea level.

## Methodology

This study was based on primary data collected through interviews of the villagers with a structured questionnaire. The questionnaire was prepared on the basis of a pilot survey of the area.The questionnaire was designed to collect information on socio-economic attributes, tourism related activities and local natural resources. The questions were a mixture of open and closed ended ones.

The questionnaire survey sampled 21 households out of the total of 26 which is almost 80% of the households. The data collected was systematically arranged, processed and analyzed to understand the socio-economic condition of the village and the growth of ecotourism in the village and its impact on the local economy.

## III.Results and Discussion

## Main livelihood

The main livelihood of the villagers used to be agriculture in the past supplemented with livestock rearing. Due to the proximity of the forest the fodder for their cattle came entirely from the forest with a very small percentage coming from agricultural waste and homestead land. The geographical location and climate facilitated the cultivation of vegetables and cash crops like ginger and cardamom. The only revenue earned from livestock is through the sale of milk. The amount of landholding has no relation with the amount of livestock reared. In fact it depended upon the availability of labor at home. The households not owning a cow either had less working hands at home or had family members working outside the village in the urban centers like Sikkim and Kalimpong. Nevertheless, such households had goats which imply that the easy access to fodder from the forest encouraged the rearing of livestock.

Over time the main livelihood of the villagers shifted from agriculture to other activities due to a number of factors like:

a. Reduction in agricultural productivity
b. Decrease in the amount of landholding per household due to fragmentation of land
c. Shortage of family labour

The agricultural productivity has declined over the past many years. The cultivation of ginger which used to take place on a large scale in the hill regions have gone down drastically. This has been replaced with cardamom cultivation since the last few years. This phenomenon was observed in this village too. Water for irrigation being of no constraint, cardamom cultivation is being practiced by the households having enough land. Seasonal vegetables are cultivated and sold by almost every household in varying quantities. The main ones being squash, squash root beans, radish and spinach.

The average landholding in the village was 0.25 acres. The initial allocation of land to every household was 1-1.5 acre which after fragmentation among the future generations has resulted in decrease in the size of landholding per household. The uneconomic size of landholding limits the agricultural output. Moreover those households whose land has not been subject to fragmentation are also not very keen in pursuing agriculture as their mainstay due to low productivity and lack of agricultural labour.

With agriculture not being sustainable the villagers have diversified their livelihood options. Every household has a member working on daily wages. 19% of households have a member employed in the forest department as a government salaried employee. Almost 42% of the households have a family member working outside the village. 38% of the households have their family members migrated to nearby urban centers like Sikkim and Kalimpong working either in private companies or on daily wage basis with an average income of Rs 8000 per month. This has given rise to shortage of working hands in agriculture. In fact the movement of labour outside the village has created a cause and effect situation for low agricultural output.

**Expenditure**

The average monthly expenditure of the household is Rs 5000 excluding the monthly expenditure on education which has become a very vital portion of their monthly expenditure. Although 33% of the household heads were illiterate the situation is much different now, where every household have their children pursuing education. The average monthly expenditure on education is Rs. 2000 . With their requirements rising above subsistence the expenditure is also bound to rise.

**IV. Tourism- A new livelihood opportunity**

Echeygaon in the last eight years has witnessed an entirely new phenomenon in the livelihood strategy arena. The introduction of the concept of ecotourism in the village has come as a blessing for the locals. With its theme of economic upliftment and nature conservation ecotourism has found just the right breeding ground in the village.The geographical location and the surrounding forest satisfy the criteria for a perfect ecotourism location.

Ecoturism activities in the form of homestays, treks, bird watching has initiated as a new livelihood option for the villagers. Since its introduction in 2012 this phenomenon has witnessed an enormous growth. With its humble beginning in 2012 with just 4 rooms, accommodating 10 individuals, available for homestay, it has spread out over a major section of the village which now has more than 50 rooms to offer.

Every household in the village now has, on an average, two rooms to offer. Most of the rooms given out as home-stays are new constructions done by the owners. Since the home-stays are run and maintained by the owner of the households themselves, every member in the household is engaged. This has created an opportunity for self-employment to the villagers. With employment opportunities being created at home, a trend of re-migration was seen due to the requirement of more working hands in their homes.

Ecotourism has also revived agriculture as a livelihood in the village. Demand for organic products, especially vegetables, has been on a rising trend as this is one special feature that the home-stays have to offer to their guests. This trend has resulted in the increase in cultivation of vegetables that used to be grown earlier as well as introduction of new varieties like lettuce, bringal, ladys' finger, beetroot and carrot. Those households that are not engaged in tourism activities, due to lack of resources both financial and landed, are concentrating on the cultivation and supply of fruits and vegetables for sale in the village itself. This had led to a massive decline in the sale of vegetables outside the village which was the trend earlier.

There has also been an increase in livestock rearing. With the initiation of tourism activities in the village there was creation of demand for livestock products the most common one being poultry. Those households who are not directly involved in the tourism business were seen to undertake poultry keeping. Cattle- rearing also showed an improvement compared to earlier times as there was demand for milk and milk products. But due to the effort being more this was not very popular among the villagers. The villagers who reared local chicken which is more expensive compared to poultry, revealed that due to the increase in demand for meat and eggs the activity has become lucrative.

Employment opportunities have been created not only for the village members of EchheyGaon but also for locals in the vicinity. Young boys and girls between the age of 16-23, studying in schools and colleges were seen to work as local guides, especially for treks and bird watching, during their vacations. People from the village as well as vicinity areas have found earning sources as drivers, small shopkeepers, roadside restaurant owners, etc.

Ecotourism is based on natural, protected and pristine environment. Conservation of the natural resources is the key ingredient for ecotourism to thrive. Villagers have kept this in mind and try their best to live up to it. They take keen interest in the beautification and cleanliness of their village. In the process, the natural resource that is the forest resources has remained conserved.

The success of tourism in this village has seeped to the nearby areas as well. This was evident from the fact that a good number of households around the village have also started venturing into this option.

**V. Constraints and Suggestions**

Ecotourism is no doubt a success story for EchheyGaon but not without some constraints as the simple villagers are not an expert in the field and they ventured into this area without any kind of training or orientation. Hence poor planning of their tourism activities is a big constraint. Their constructions are not well planned and miss the expert touch in them. Infrastructural bottlenecks like roads have always been an impediment for tourism in the hilly regions of North Bengal. EchheyGaon is no exception to this. The approach road to the village from the main road is aarough stone-laid path which results in a rough ride to reach the village. The area falls under the jurisdiction of the Forest Department which has made road construction complicated.

The lack of education and geographic location constrains the villagers from the use of information technology. They are unable to develop websites for their businesses which restricts their market. Those business units that have been given out on lease to outsiders have made use of information technology and have shown better performance than the others. This weakness from their part has led to very limited promotion of their place and its offerings.

Lastly, due to above mentioned limitations the villagers lack professional marketing of their business. Since they are new to this livelihood technique and lack any form of training or specialization, they are lagging behind in the marketing front. As a result there was seen a trend of giving out their property on lease to businessmen from outside. This no doubt ensured a secure amount of earning to the property owners but the amount was only a quarter of what they would have earned had they run their business by themselves.

These limitations that the villagers are experiencing could to a large extent be addressed to with some support from the government. Workshops could be conducted for the aspirant villagers where they could get training and guidance on use of internet and information technology in their business activities, cost efficient construction techniques, enhancing marketing and networking skills. Trade fairs could be organized by governmental and non-governmental organisations where the villagers and home-stay owners could get an exposure and chance to promote their business and learn some promotional skills. Moreover, there is need for the government to look into the matters of improving the infrastructure like road construction and maintenance, which is a very essential support system to the tourism activities.

## VI. Conclusion

Rural hill economy has stagnated due to its overdependence on limited productivity of the marginal farmers which has started depleting. With this backdrop the consideration of alternative livelihood options brings to light the immense potential that the rural areas of hilly region of North Bengal havefor promoting ecotourism that could stimulate economic development by empowering local people with the income earned and employment generated through ecotourism activities. This not only boosts local economies but also encourages conservation of the natural resources as their maintenance and safeguard forms the basis for earning revenue which otherwise would have been destroyed for the same. Further, the potential this area has could be taken to a higher level with proper planning, use of modern technology like internet, professional marketing and government support to achieve these to take full advantage of its multiplier effect.

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# Growth Status of Unorganised Trading Enterprises in India

**Soumita Dasgupta[1], Akash Dandapat[2] and Dr. Pinaki Das[3]**

## Abstract

The present paper tried to study the growth of number of unorganised trading enterprises (UTEs), employment and gross value added (GVA) across major states based on NSSO 67th (2010-11) and 73rd (2015-16) rounds Unit Level data. Our study reveals that around 85 per cent of UTEs in India occupied by retail sector solely. The number of UTEs and number of employment increased although the increment was not statistically significant from 2010-11 to 2015-16. The majority share of number of UTEs, number of employment and GVA were occupied by seven states namely, Uttar Pradesh, Wet Bengal, Maharashtra, Andhra Pradesh, Tamil Nadu, Karnataka and Bihar. Per annum growth rates of GVA in eight states were more than 10 percent during 2010-11 to 2015-16. The multinomial logit regression reveals that rural located and establishment type enterprises were more likely to be expanding. Moreover, Government assistance and productivity were significantly affecting the expanding nature of growth.

**Keywords: Unorganised, Retail, Trade**

**JEL Classification: E20, F16, L81, O17**

## I. Introduction

Examination of subtle changes in the growth of Unorganised Trading Enterprises (UTEs) in India is one of the most fascinating and yet unexplored area of research. In spite of availability of official statistical data on unorganized trading enterprises within the country, the current status of this sector is often not inspected. Informal sector or unorganized sectors, those two terms are frequently used in equivalent context. During the study of economic activities among rural migrants in Accra, Ghana, the British anthropologist Keith Hart first introduced the concept of informal sector in 1971 (Hart 1973). In 1972, International Labour Organisation (ILO) foremost used the term informal sector to symbolize wide range of small, marginal and unregistered economic activities. Since then the term has been much debated. Fifteenth International Conference of Labour Stat-

1. M.Phil. Scholar, Department of Economics, Vidyasagar University, email: soumitadg94@gmail.com

2. Ph.D. Scholar, Department of Economics, Vidyasagar University, email: akashdandapatn5@gmail.com

3. Associate Professor and HOD, Department of Economics, Vidyasagar University, email: pdasvu@mail.vidyasagar.ac.in

isticians (ICLS) held at Geneva in January, 1993 mentioned that informal sector regarded as a group of production units which formed by part of the household sector as household enterprises or equivalently, unincorporated enterprises owned by households. It included only household enterprises engaged in non-agricultural activities under informal sector (Tripathi, 2018). According to National Commission for Enterprise of our country, unorganized sector consist of all unincorporated private enterprises owned by individuals or households engaged in the sale or production of the goods and services operated on proprietary or partnership basis with less than ten total workers. Presently, more than 60% of world labour's force is employed in informal economy. In case of any developing country like India, it is more or less 90% (ILO, 2018).

Enormity of trading activities spread all over the economy of the country and having the potential of providing employment to a large section of population with a significant contribution in country's GDP. Purchasing and selling of goods without any intermediate physical transformation can be define as a trade. The activities of intermediaries who are not trader by themselves but generally help to arrange the trading activity and earn remuneration in form of brokerage and commission are also included in trade (NSSO, 73rd round).

## II. Literature Review

Tripathi (2018) argued that the unorganized sector of India encompasses the treasure of traditional indigenous knowledge and economic activities of this sector are also highly diversified. Throughout the period 60's and 70's it was consider that informal economy must be shrink with growth but the findings during 1990's and 2000's revealed that globalization and trade reform expand this sector instead of withering (Sinha 2009).Countries with a large population of workforce in the unorganized sector have to reckon with the fact that a number of such workers will rise as a consequence of structural adjustment and economic reform. New approach is needed to development in which such petty producers are made agents of social transformation through their own organizations which bring the economic scale, technology, credit and marketing (Parthsarathy 1996). Joddar and Sakthivel (2006) estimate that in the nonfarm sectors, as income ladder moved up, the share of the informal sector gradually declines. Traditional sources like trade and repair are the most important contributor to employment. Most of the increase in employment for the sector was accounted for by retail trade. Of the 116 million in services, retail trade alone provided employment to 35.7 million workers in 2009-10. Mukherjee and Goyal(2012) was conducted a survey of around 500 retail employees and employers, using descriptive techniques. Authors have concluded that the quality of employment and future job prospects are better in the organized sector than in the unorganized sector. For regulating the interaction of large retailers with small suppliers and for strengthening the competitive response of the unorganized retailers, a study of Joseph et al. (2008) has made a number of specific policy recommendations based on the result of the survey. Gandhi and Cinnadorai (2017), study conducted in Indian context highlighted the problems in unorganized retail products with regards to customer and retailer perception. Unorganized retail refers to traditional low capital retailing viz. local grocery shops, small convenience stores, small pavement side vendors, owner-manned general stores, hand-cart, hawkers etc. Problems of bad debts, difficulties in getting government subsidies or concessions have negative impact on unorganised retailers of retail business and majority of the retailers are facing the problem of limited financial resources. (Vetrivel, 2017). Generally in India, most of the retails and retail outlets are unorganized and they don't have a system to regulate and control their consequences (Devi and Geral, 2016). The findings based on static CGE (Computable General Equilibrium) analysis indicate that amongst growing informal sector activities, output growth is lower in absence of segmented labour market (i.e. in absence of both wage rigidity and skill specificity) with full mobility of labour. The study reveals that improvement in functional income distribution is mixed across households, depending on the degree of labour mobility, which implies labour market adjustment is costly due to structural reforms, that pitches for government intervention (Kundu,2020). On the other hand, the study which has concentrated on a few pockets of West Bengal and two specific areas in Maharashtra and Gujarat showed small scale industries and their employees have gained not only from greater trade openness, but also from substantial trickling down of information relevant for appropriate expansion and pricing mechanisms within the firms and for suitable strategic decisions by individuals including skill acquisition, inter-sectoral and inter-regional mobility (Kar and Marjit 2008). Pant and Bagai (2015) in their paper indicates that co-existence of the two sectors is a knife-edge problem and generally unlikely. It is seen that while low growth rates of demand would eliminate the organized sectors, high growth rates and product competition will eliminate the unorganized sector. There is political need to ensure coexistence or sometime would require some market segmentation via regulatory restriction like zoning. A glance at the employment number provides a picture of relative size of the two forms of trades in India -organised trade employs roughly 5 lakh people whereas the unorganised retail trade employs nearly 3.95 crore. In the context of FDI, government of India try to ensure that the small retailers must be given the opportunity to provide more personalised service, so that their higher costs are not taken advantage of by large supermarkets and hypermarkets (Guruswamy, Sharma, Mohanty and Korah 2005) . Drawing cues from primary data, article of Borker & Paul showed majority of workers in organized retail report are satisfied in training and development opportunities while those in unorganized are not. In India, 33-60% of the traditional fruit and vegetable retailers reported a 15-30% decline in footfalls, 10-30% decline in sales and 20-30% decline in incomes across the cities of Bangalore, Ahmedabad and Chandigarh, the largest impact being in Bangalore, which is one of the most supermarket penetrated cities in India. (Singh, 2011).A small sample survey of the impact of malls on small shops and hawkers in Mumbai points to a decline in sales of groceries, fruits and vegetables, processed foods, garments, shoes, electronic and electrical goods in these retail outlets, ultimately threatening 50 per cent of them with closure or a major decline in business. Only 14 per cent of the sample of small shops and hawkers has so far been able to respond to the competitive threat of the malls with the institution of fresh sales promotion initiative (Kalhan 2007). The growth of large format retail raises serious issues for the urban environment and town planning in dense and rapidly urbanising countries like India (Kalhan, Franz 2009). There has been "precocious" penetration of rural towns by rural supermarkets and rural business hubs, emergence of fresh produce retail that took much longer to initiate in other regions, and emergence of Asian retail developing-country multinational chain (Thomas Reardona, Peter Timmerc and Bart Mintend2012).

## III. Database and Methodology

To conduct this study on unorganized trading enterprises (UTEs), we have used National Sample Survey Organisation (NSSO) 67th (2010-11) and 73rd (2015-16) round unit level data. In these two rounds NSSO conducted surveys on UTEs under the name of "Non-Agriculture Enterprises in India (excluding construction)".

*Multinomial Logit Model:*

The multinomial logit (MNL) model is used when all the regressors are case specific, the MNL model specifies that

$$P_{ij} = \frac{\exp(x_i'\beta_i\ )}{\sum_{i=1}^{m}\exp(x_i'\beta_i\ )}$$

Where $X_i$ are case-specific regressors, here an intercept and income. Clearly, this model ensures that $0<P_{ij}P_{ij}<1$ and $\sum_{j=1}^{m}P_{ij} = 1\sum_{j=1}^{m}P_{ij} = 1$ . To ensure model identification $\beta_j\beta_j$, is set to zero for one of the categories, and coefficients are then interpreted with respect to that category, called the base category.

Coefficient in a multinomial model can be interpreted in the same way as binary logit model parameters are interpreted, with comparison being to the base category. This is a result of the multinomial logit model being equivalent to a series of pair wise logit models. For simplicity, we set the base category to be the first category. Then the MNL model defined in implies that

$$\Pr(y_i = j\backslash y_i = j\ or\ 1) = \frac{\Pr(y_i = j)}{\Pr(y_i = j) + \Pr(y_i = 1)} = \frac{\exp(x_i'\beta_i\ )}{1 + \exp(x_i'\beta_i\ )}$$

Using $\beta_j = 0\beta_j = 0$ and cancellation of $\sum_{i=1}^{m} \exp(x_i' \beta_i)\sum_{i=1}^{m} \exp(x_i' \beta_i)$ in the numerator and denominator.

Thus $\hat{\beta}_i\hat{\beta}_i$ can be viewed as parameters of binary logit model between alternative j and alternative 1. So a positive coefficient from m-logit means that as the regressor increases, we are more likely to choose alternative j than alternative j than alternative 1. This interpretation will vary with the base category and is clearly most useful when there is a natural base category. Some researchers find it helpful to transform to odds ratios or relative- risk ratios, as in the binary logit case. The odds ratio or relative-risk ratio of choosing alternative j rather than alternative 1 is given by

$$\frac{\Pr(y_i = j)}{\Pr(y_i = 1)} = \exp(x_i' \beta_i)$$

So $e^{\beta_{jr}} e^{\beta_{jr}}$ gives the proportionate change in the relative risk of choosing alternative j rather than alternative 1 when $x_{ir}$.

**Objectives**

1. To analyse the growth of number of UTEs, employment and GVA across major states.
2. To analyse the factors affecting the status of an enterprises in 2010-11 and 2015-16.

**Plan of the Study**

This paper is divided further in four sections. In section 2, we have shown the number of UTEs, employment and GVA across major states. In section 3 we have shown the growth rates and status of growth across major states. In section 4 we have done a unit level study to analyse the factors that affect the status of enterprises. Section 5 has concluded the observations.

**IV. Number, Employment and GVA of UTEs**

The National Sample Survey Organisation (NSSO) of India has classified UTEs in two types of enterprises namely, own account trading enterprises (OATEs) and established trading enterprises (ESTTEs). OATEs are those which do not hire any worker on a regular basis throughout a year and ESTTEs hire at least one worker throughout a year. In this section of this paper we tried to study the exact number, employment and gross value addition (GVA) of Unorganised Trading Enterprises (UTEs) which functioned in 2010-11 and 2015-16 in India (Table 1).

In India the total number of UTEs increased from 2, 07, 51,000 in 2010-11 to 2, 30, 36,000 in 2015-16 for all types of enterprises. The number of OATEs was more than the ESTTEs in India during 2010-11 to 2015-16. For OATEs, it increased from 1,78,24,000 in 2010-11 to 1,94,70,000 in 2015-16 and for ESTTEs it increased from 29,26,000 in 2010-11 to 35,66,000 in 2015-16.The total number of employment in UTEs also increased from 3,41,29,000 in 2010-11 to 3,87,38,000 in 2015-16 for all types. Like the number of enterprises, the number of employment in OATEs was slightly higher than ESTTEs. In OATEs, employment increased from 2,45,06,000 in 2010-11 to 2,69,11,000 in 2015-16 and in ESTTEs employment increased from 96,23,000 in 2010-11 to 1,18,27,000 in 2015-16. NSSO measured the gross value added (GVA) by deducting total operating expenses and distributive expenses from total receipts. The GVA of OATEs in India increased from Rs 27,769 crore in 2010-11 to Rs 42,866 crore in 2015-16 whereas the GVA of ESTTEs increased from Rs 24,365 crore in 2010-11 to Rs 38,753 crore in 2015-16. Here also in case of GVA, the value addition by OATEs was quite higher than ESTTEs in India. For all type of enterprises GVA increased from Rs 52, 134 crore in 2010-11 to Rs 81,619 crore in 2015-16.

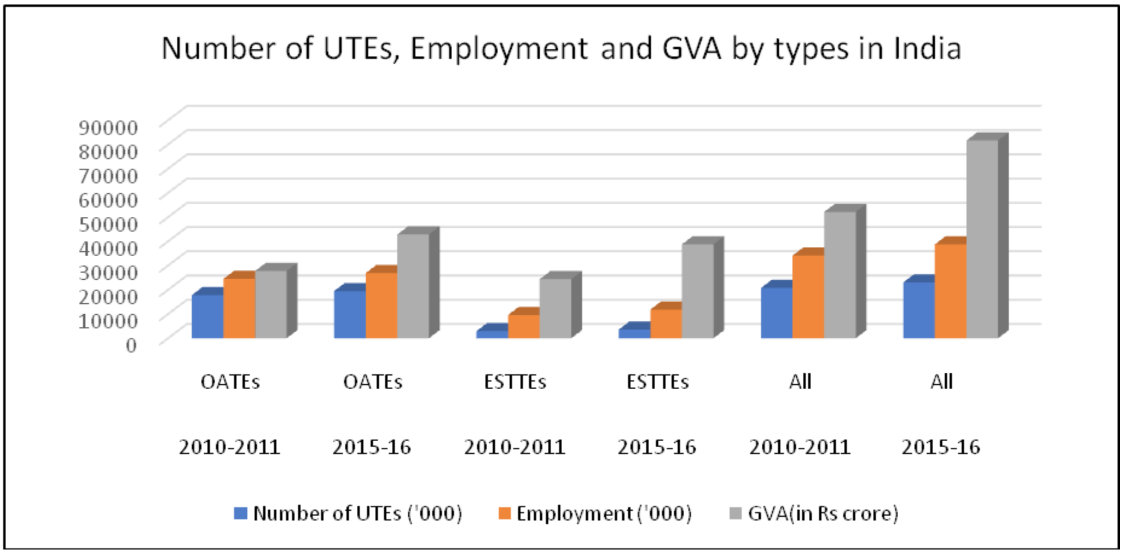
The growth rate per annum (GRPA) is calculated to show that whether they had grown or not during 2010-11 and 2015-16. In case of number of enterprises, the GRPA of ESTTEs was very higher than OATEs. The GRPA of number of OATEs, ESTTEs and ALL types of enterprises were 1.8%, 4.4% and 2.2% per annum respectively. The GRPA of employment for all types of enterprises was 2.7% whereas the GRPA of OATEs and ESTTEs were 2% and 4.6% per annum respectively. For GVA in case of all types the GRPA was 11.3% whereas for OATEs and ESTTEs, the GRPA were 10.9% and 11.8% per annum respectively.In every case at all India level, per annum growth rate of ESTTs type enterprises was higher than the OATEs during this five year duration. Particularly for growth of number of enterprises and employment this difference was very high. Another interesting important indication is that, along with the number of trading enterprises employment had also grown at more or less similar rate. This may be due to the fact that the share of OATEs were very high than the share of ESTTEs. Figure 1 shows graphically the scenario of number of UTEs, employment and GVA by types of enterprises in India for 2010-11 and 2015-16.

**Table 1: Number of UTEs, employment and GVA by types of enterprises in India, 2010-11 and 2015-16**

| | 2010-2011 | | | 2015-16 | | | GRPA (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | OATEs | ESTTEs | All | OATEs | ESTTEs | All | OATEs | ESTTEs | All |
| Number of UTEs ('000) | 17824 | 2926 | 20751 | 19470 | 3566 | 23036 | 1.8 | 4.4 | 2.2 |
| Employment ('000) | 24506 | 9623 | 34129 | 26911 | 11827 | 38738 | 2 | 4.6 | 2.7 |
| GVA(in Rs crore) | 27769 | 24365 | 52134 | 42866 | 38753 | 81619 | 10.9 | 11.8 | 11.3 |

*Source: Authors' Calculation based on NSSO Unit Level data of 67th (2010-11) and 73rd (2015-16) rounds.*

**Figure 1: Number of UTEs, employment and GVA by types of enterprises in India, 2010-11 to 2015-16**




Again, others important indicators like social ownership of enterprises across castes, nature of operations (i.e. perennial, seasonal and casual) are shown on the basis of NSSO data for the years 2010-11 as well as 2015-16. Distribution of number of UTEs by types in respect to social ownership i.e. General, OBC, SC and ST for 2010-11 and 2015-16 is presented in table 2 at all India level. It was observed that among all the caste OBC had the highest ownership of UTEs for all type of enterprises, which increased from 42.29 % in 2010-11 to 46.45 % in 2015-16. Second highest share of number of UTEs was captured by General category. The General caste accounted for 40.98% UTEs in 2010-11 which was increased to 46.45%UTEs in 2015-16.The most interesting fact is that the share of number of OBC establishments (ESTTEs) increased from 33.3 % in 2010-11 to 39 % in 2015-16 whereas the share of number of general ESTTEs decreased from 60.75 % in 2010-11 to 52.32 % in 2015-16. However, the share of number of OATEs was highest in OBC among all other social categories for both the period 2010-11as well as 2015-16. The share of it was 43.71 % in 2010-11 and 47.82% in 2015-16. But in case of ESTTEs, General category still had the highest share of enterprises for both periods. The other two social groups namely, SC and ST had very minor share (less than 3%) of ownership for OATEs, ESTTEs and ALL types of enterprises under both periods of the study.

**Table 2: Distribution of UTEs by type of social ownership in India, 2010-11 and 2015-16**

| Social Ownership | 2010-11 | | | 2015-16 | | |
|---|---|---|---|---|---|---|
| | OATEs | ESTTEs | All | OATEs | ESTTEs | All |
| GENERAL | 37.74 | 60.75 | 40.98 | 34.26 | 55.32 | 37.52 |
| OBC | 43.77 | 33.3 | 42.29 | 47.82 | 39 | 46.45 |
| ST | 4.73 | 1.11 | 4.22 | 5.11 | 1.16 | 4.5 |
| SC | 13.12 | 4.01 | 11.83 | 11.98 | 3.28 | 10.64 |
| Not Known | 0.65 | 0.83 | 0.67 | 0.82 | 1.24 | 0.88 |
| All | 100 | 100 | 100 | 100 | 100 | 100 |

*Source: Authors' Calculation based on NSSO Unit Level data of 67th (2010-11) and 73rd (2015-16) rounds*

**Table 3: Distribution of UTEs by type of nature of operation in India, 2010-11 and 2015-16**

| Nature of Operation | 2010-11 | | | 2015-16 | | |
|---|---|---|---|---|---|---|
| | OATEs | ESTTEs | All | OATEs | ESTTEs | All |
| Perennial | 98.82 | 99.51 | 98.91 | 98.51 | 99.29 | 98.63 |
| Seasonal | 0.99 | 0.42 | 0.91 | 1.29 | 0.58 | 1.18 |
| Casual | 0.19 | 0.08 | 0.18 | 0.2 | 0.12 | 0.19 |
| All | 100 | 100.01 | 100 | 100 | 99.99 | 100 |

*Source: Authors' Calculation based on NSSO Unit Level data of 67th (2010-11) and 73rd (2015-16) rounds*

Similarly, with the help of table 3 distributions of UTEs by type of nature of operation, for the period 2010-11 and 2015-16 at all India level are presented. There are mainly three types of nature of operation namely, perennial, seasonal and casual. Enterprises may operate more or less throughout the year or in seasons or intermittently throughout the year. Accordingly, they are respectively termed as perennial, seasonal and casual enterprises (NSSO 73rd Round). Most of the UTEs were basically perennial by nature of operation. In case of OATEs, 98.82% numbers of enterprises were perennial in nature in 2010-11 where in 2015-16 it became 98.51%. Similarly for ESTTEs in 2010-11, 99.51 % enterprises were perennial where as in 2015-16 the share of it was 99.29 %. In all type UTEs, number of perennial enterprises was 98.91 % in 2010-11 and 98.63 % in 2015-16. Seasonal and casual nature of enterprises had very lower share almost for every categories and also for both the years.

Relative share of each state for a particular type of enterprise has been calculated to show the share of one state for that particular type of enterprise (i.e. OATEs or ESTTEs or ALL).Table 4 depicts the positions of major states of India in descending order with respect to 2015-16's ALL type of UTEs according to the relative share of number of UTEs. The top five states of the table captured almost 50% share among total enterprises; they are namely, Uttar Pradesh, West Bengal, Maharashtra, Andhra Pradesh, and Tamil Nadu whereas Delhi, Chhattisgarh, Jammu & Kashmir, Uttaranchal and Himachal Pradesh had the lowest share in case of number of UTEs for both the periods. For West Bengal, Maharashtra, Andhra Pradesh, Gujarat, Orissa, Haryana, Delhi relative share of number of UTEs decreased in all type of enterprises in 2015-16 than the year 2010-11.Uttar Pradesh had highest number of OATEs for both 2010-11 and 2015-16. However, in case of ESTTEs, West Bengal had highest share in 2010-11, but it had replaced by Maharashtra in the year 2015-16. In states likes West Bengal, Andhra Pradesh, Gujarat, Assam and Delhi; ESTTs decreased from 2010-11 to 2015-16. Our study shows that all minor states/UTs accounted for very minor share of number of UTEs i.e. only less than 3%. Figure 2 shows the relative share of number of UTEs for all types across states/UTs for the period 2010-11 and 2015-16.The numbers of OATEs across states/UTs were significantly higher than ESTTEs in 2010-11 and 2015-16 (Table 5).

**Table 4: Relative share of number of UTEs across major states, 2010-11 and 2015-16**

| States | 2010-2011 | | | 2015-16 | | |
|---|---|---|---|---|---|---|
| | OATEs | ESTTEs | All | OATEs | ESTTEs | All |
| Uttar Pradesh | 17.73 | 8.72 | 16.46 | 18.57 | 10.9 | 17.38 |
| West Bengal | 10.89 | 10.98 | 10.91 | 10.31 | 7.05 | 9.81 |
| Maharashtra | 8.8 | 10.26 | 9.01 | 7.74 | 10.93 | 8.24 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Andhra Pradesh | 7.67 | 7.98 | 7.72 | 6.85 | 6.47 | 6.79 |
| Tamil Nadu | 5.53 | 9.76 | 6.13 | 6.14 | 9.23 | 6.62 |
| Bihar | 5.07 | 1.75 | 4.6 | 7.08 | 3.52 | 6.53 |
| Karnataka | 4.46 | 6.26 | 4.72 | 5.5 | 8.89 | 6.02 |
| Madhya Pradesh | 4.96 | 3.63 | 4.77 | 4.75 | 4.08 | 4.64 |
| Rajasthan | 3.82 | 3.33 | 3.76 | 4.68 | 4.16 | 4.6 |
| Gujarat | 5.67 | 5.64 | 5.67 | 4.55 | 4.51 | 4.54 |
| Orissa | 5.69 | 2.04 | 5.17 | 3.7 | 2.08 | 3.45 |
| Kerala | 2.31 | 5.68 | 2.79 | 2.58 | 6.75 | 3.22 |
| Assam | 2.63 | 3.06 | 2.69 | 2.91 | 2.86 | 2.91 |
| Jharkhand | 2.39 | 1.31 | 2.24 | 2.91 | 1.15 | 2.63 |
| Punjab | 2.52 | 3.75 | 2.69 | 2.26 | 3.76 | 2.49 |
| Haryana | 2.1 | 2.92 | 2.22 | 1.77 | 2.94 | 1.95 |
| Delhi | 1.77 | 7.04 | 2.51 | 1.43 | 4.24 | 1.87 |
| Chhattisgarh | 1.37 | 1.88 | 1.45 | 1.84 | 1.39 | 1.77 |
| Jammu & Kashmir | 1.06 | 1.1 | 1.07 | 1.51 | 1.8 | 1.56 |
| Uttaranchal | 0.85 | 0.9 | 0.86 | 0.56 | 0.47 | 0.54 |
| Himachal Pradesh | 0.52 | 0.46 | 0.51 | 0.53 | 0.49 | 0.52 |
| India | 100 | 100 | 100 | 100 | 100 | 100 |

*Source: Authors' Calculation based on NSSO Unit Level data of 67th (2010-11) and 73rd (2015-16) rounds*

**Table 5: Mean test of number of enterprises between OATEs and ESTTEs across states/UTs, 2010-11 and 2015-16**

| Year | Nature of UTEs | Mean | SD | CV | Observations | F-value | t-value |
|---|---|---|---|---|---|---|---|
| 2010-11 | OATEs | 509265 | 684139 | 1.34 | 35 | 46.52*** | 3.64*** |
| | ESTTEs | 83613 | 100303 | 1.19 | 35 | | |
| 2015-16 | OATEs | 556295 | 754073 | 1.35 | 35 | 39.86*** | 3.52*** |
| | ESTTEs | 101872 | 119433 | 1.17 | 35 | | |

| Nature of UTEs | Year | | | | | | |
|---|---|---|---|---|---|---|---|
| OATEs | 2010-11 | 509265 | 684139 | 1.34 | 35 | 0.82 | 0.27 |
| | 2015-16 | 556295 | 754073 | 1.35 | 35 | | |
| ESTTEs | 2010-11 | 83613 | 100303 | 1.19 | 35 | 0.7 | 0.69 |
| | 2015-16 | 101872 | 119433 | 1.17 | 35 | | |

*Source: Authors' Own Calculation based on NSSO 67th (2010-11) and 73rd (2015-16) data*

As like table 4, table 6 also represents the relative shares for employment in major states across India in decreasing order with respect to 2015-16's All type of UTEs. Around 50% share of employment was captured by Uttar Pradesh, Maharashtra, West Bengal, Tamil Nadu and Andhra Pradesh. The bottom five states were Chhattisgarh, Haryana, Jammu & Kashmir, Himachal Pradesh and Uttaranchal. In 2015-16, employment shares had fallen for the states of Maharashtra, West Bengal, and Andhra Pradesh, Gujarat, Orissa, Delhi and Haryana in all type of UTEs. Relative share of ESTTEs was highest in West Bengal for the period 2010-11 but in 2015-16, Uttar Pradesh had captured the highest share in ESTTEs. For both of the period 2010-11 and 2015-16, Uttar Pradesh had the dominated share in OATEs. In West Bengal, Andhra Pradesh, Gujarat and Delhi employment share in ESTTEs type had fallen noticeably. Our study reveals that like the number of enterprises in case of employment minor states/ UTs were accounted for vey fewer shares. Relative share of employment in UTEs for all types across states/UTs, for 2010-11 and 2015-16 is presented graphically in figure 3. The number of employment in OATEs was significantly higher than ESTTEs in both period 2010-11 and 2015-16 (Table 7).

**Table 6: Relative share of employment in UTEs across major states, 2010-11 and 2015-16**

| States | 2010-11 | | | 2015-16 | | |
|---|---|---|---|---|---|---|
| | OATEs | ESTTEs | All | OATEs | ESTTEs | All |
| Uttar Pradesh | 18.95 | 8.94 | 16.13 | 19.76 | 11.98 | 17.38 |
| Maharashtra | 9.23 | 10.41 | 9.56 | 8.21 | 11.04 | 9.08 |
| West Bengal | 9.57 | 10.74 | 9.9 | 9.27 | 6.61 | 8.46 |
| Tamil Nadu | 5.37 | 10.12 | 6.71 | 6.53 | 9.64 | 7.48 |
| Andhra Pradesh | 8.52 | 8.36 | 8.47 | 7.46 | 6.64 | 7.21 |
| Karnataka | 4.51 | 6.47 | 5.06 | 5.78 | 9.07 | 6.78 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Bihar | 5.02 | 1.49 | 4.03 | 6.56 | 3.51 | 5.63 |
| Madhya Pradesh | 5.15 | 3.4 | 4.66 | 4.79 | 4.34 | 4.65 |
| Gujarat | 5.58 | 6.09 | 5.72 | 4.64 | 4.63 | 4.64 |
| Rajasthan | 3.68 | 3.21 | 3.55 | 4.24 | 3.78 | 4.1 |
| Kerala | 2.14 | 5.84 | 3.19 | 2.39 | 6.79 | 3.73 |
| Orissa | 6.12 | 1.88 | 4.92 | 4.02 | 2.09 | 3.43 |
| Punjab | 2.34 | 3.79 | 2.75 | 1.98 | 3.62 | 2.48 |
| Jharkhand | 2.1 | 0.97 | 1.78 | 2.96 | 1.12 | 2.4 |
| Assam | 2.34 | 2.53 | 2.4 | 2.35 | 2.24 | 2.32 |
| Delhi | 1.58 | 7.32 | 3.2 | 1.32 | 4.16 | 2.19 |
| Chhattisgarh | 1.57 | 1.95 | 1.67 | 2.3 | 1.43 | 2.04 |
| Haryana | 2.01 | 2.81 | 2.23 | 1.55 | 2.69 | 1.9 |
| Jammu & Kashmir | 1 | 1.02 | 1.01 | 1.25 | 1.58 | 1.35 |
| Himachal Pradesh | 0.51 | 0.42 | 0.48 | 0.47 | 0.49 | 0.47 |
| Uttaranchal | 0.81 | 0.81 | 0.81 | 0.51 | 0.38 | 0.47 |
| India | 100 | 100 | 100 | 100 | 100 | 100 |

*Source: Authors' Calculation based on NSSO Unit Level data of 67th (2010-11) and 73rd (2015-16) rounds*

**Table 7: Mean test of Employment between OATEs and ESTTEs across states/UTs, 2010-11 and 2015-16**

| Year | Nature of UTEs | Mean | SD | CV | Observations | F-value | t-value |
|---|---|---|---|---|---|---|---|
| 2010-11 | OATEs | 700173 | 974266 | 1.39 | 35 | 8.29*** | 2.43*** |
| | ESTTEs | 274952 | 338254 | 1.23 | 35 | | |
| 2015-16 | OATEs | 768882 | 1079425 | 1.40 | 35 | 6.92*** | 2.2*** |
| | ESTTEs | 337908 | 410322 | 1.21 | 35 | | |
| Nature of UTEs | Year | | | | | | |
| OATEs | 2010-11 | 700173 | 974266 | 1.39 | 35 | 0.81 | 0.27 |
| | 2015-16 | 768882 | 1079425 | 1.40 | 35 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ESTTEs | 2010-11 | 274952 | 338254 | 1.23 | 35 | 0.67 | 0.7 |
| | 2015-16 | 337908 | 410322 | 1.21 | 35 | | |

*Source: Authors' Own Calculation based on NSSO 67th (2010-11) and 73rd (2015-16) data*

Table 8 similarly represents the relative share of GVA across major states in 2010-11 and 2015-16 for all India in decreasing order with respect to 2015-16's All type of UTEs. Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu and West Bengal were the top five states in respect to GVA whereas Assam, Jharkhand, Chhattisgarh, Himachal Pradesh and Uttaranchal were belong from bottom five states. Uttar Pradesh and Karnataka had lower share in GVA for 2010-11 than Maharashtra and Tamil Nadu respectively, but for the year 2015-16 share of GVA decreased in Maharashtra and Tamil Nadu for all type of UTEs. In case of OATEs, Uttar Pradesh had highest share in GVA in 2010-11 and in 2015-16. But for ESTTEs, Maharashtra accounted for the highest share for both of the periods. Relative share of GVA of ESTTEs decreased in Tamil Nadu, West Bengal, Andhra Pradesh, Gujarat, Delhi and Madhya Pradesh remarkably. Our study finds that there were very negligible share accounted by minor states/UTs. Figure 4 represents relative share of GVA of UTEs for All type across states/UTs, 2010-11 and 2015-16. There was a significant difference in GVA from 2010-11 to 2015-16 across types of enterprises (Table 9).

**Table 8: Relative share of GVA of UTEs across major states, 2010-11 and2015-16**

| States | 2010-11 | | | 2015-16 | | |
|---|---|---|---|---|---|---|
| | OATEs | ESTTEs | All | OATEs | ESTTEs | All |
| Uttar Pradesh | 13.79 | 6.76 | 10.5 | 15.57 | 10.25 | 13.04 |
| Maharashtra | 11.91 | 12.05 | 11.97 | 10.48 | 13.46 | 11.9 |
| Karnataka | 5.35 | 7.09 | 6.16 | 7.57 | 8.79 | 8.15 |
| Tamil Nadu | 6.35 | 11.08 | 8.56 | 6.62 | 8.78 | 7.65 |
| West Bengal | 8.83 | 7.47 | 8.2 | 8.82 | 4.8 | 6.91 |
| Andhra Pradesh | 7.75 | 8.78 | 8.23 | 6.43 | 6.36 | 6.4 |
| Kerala | 3.41 | 8.39 | 5.74 | 2.86 | 8.43 | 5.5 |
| Bihar | 5.25 | 1.26 | 3.38 | 7.04 | 3.1 | 5.17 |
| Gujarat | 5.4 | 5.27 | 5.34 | 5 | 4.6 | 4.81 |
| Delhi | 3.14 | 9.99 | 6.34 | 3.1 | 5.82 | 4.39 |
| Rajasthan | 4.35 | 2.79 | 3.62 | 4.34 | 4.2 | 4.27 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Punjab | 3.35 | 3.55 | 3.44 | 2.68 | 3.92 | 3.27 |
| Madhya Pradesh | 4.29 | 3.66 | 4 | 3.7 | 2.73 | 3.24 |
| Haryana | 2.79 | 3.23 | 3 | 2.36 | 3.01 | 2.67 |
| Jammu & Kashmir | 1.64 | 0.84 | 1.27 | 2.03 | 2.34 | 2.18 |
| Orissa | 3.18 | 1.41 | 2.35 | 2.17 | 1.94 | 2.06 |
| Assam | 2.68 | 1.92 | 2.33 | 2.52 | 1.51 | 2.04 |
| Jharkhand | 2.01 | 0.63 | 1.37 | 2.05 | 0.97 | 1.54 |
| Chhattisgarh | 1.08 | 1.49 | 1.27 | 1.18 | 1.09 | 1.13 |
| Himachal Pradesh | 0.57 | 0.44 | 0.51 | 0.59 | 0.62 | 0.6 |
| Uttaranchal | 0.8 | 0.63 | 0.72 | 0.59 | 0.33 | 0.47 |
| India | 100 | 100 | 100 | 100 | 100 | 100 |

*Source: Authors' Calculation based on NSSO Unit Level data of 67th (2010-11) and 73rd (2015-16) rounds*

**Table 9: Mean test of GVA between OATEs and ESTTEs across states/UTs, 2010-11 and 2015-16**

| Year | Nature of UTEs | Mean | SD | CV | Observations | F-value | t-value |
|---|---|---|---|---|---|---|---|
| 2010-11 | OATEs | 396704542 | 485027186 | 1.23 | 35 | 1.16 | 0.43 |
| | ESTTEs | 348068026 | 450297454 | 1.29 | 35 | | |
| 2015-16 | OATEs | 612369604 | 776739737 | 1.27 | 35 | 1.3 | 0.33 |
| | ESTTEs | 553611546 | 680328085 | 1.23 | 35 | | |
| Nature of UTEs | Year | | | | | | |
| OATEs | 2010-11 | 72123089750 | 214887325098 | 2.98 | 35 | 0.3*** | 1.39 |
| | 2015-16 | 130979054323 | 390889331407 | 2.98 | 35 | | |
| ESTTEs | 2010-11 | 348068026 | 450297454 | 1.29 | 35 | 0.43*** | 1.49 |
| | 2015-16 | 553611546 | 680328085 | 1.23 | 35 | | |

*Source: Authors' Own Calculation based on NSSO 67th (2010-11) and 73rd (2015-16) data*

**Figure 2: Relative share of number of UTEs for ALL types across States/UTs, 2010-11 and 2015-16**

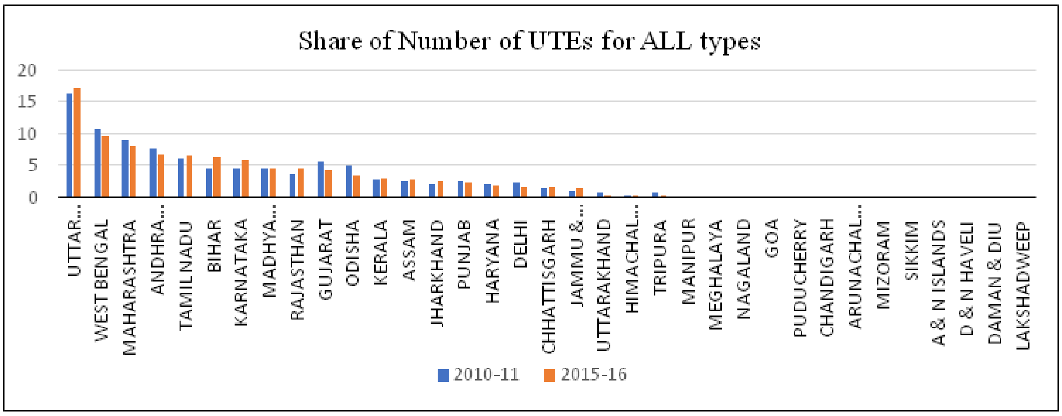



**Figure 3: Relative share of employment in UTEs for ALL types across States/UTs, 2010-11 and 2015-16**

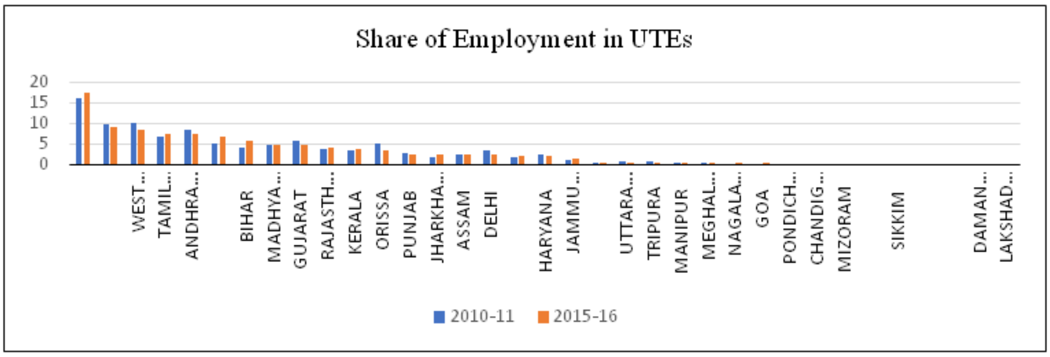
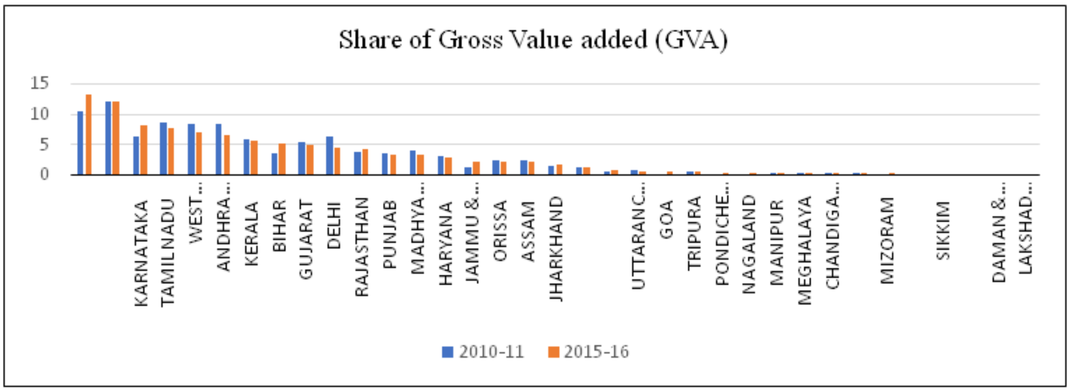



**Figure 4: Relative share of GVA of UTEs for ALL types across States/UTs, 2010-11 and 2015-16**



### V. Growth of UTEs across States/UTs

We have shown above the GRPA of UTEs in respect to number of enterprises, employment and GVA for India as a whole. Now in the Table 7 of this section we have tried to find out the GRPA of UTEs by particular types of enterprise across states/UTs. Table 10 has arranged by descending order with respect to GVA for all types of enterprises. According to growth rate of GVA for all type of UTEs, Jammu & Kashmir, Bihar, Karnataka, Uttar Pradesh and Rajasthan were the top five states where as West Bengal, Madhya Pradesh, Andhra Pradesh, Delhi and Uttaranchal were belong from bottom five. In growth of total number of UTEs for all type, Jammu & Kashmir showed highest growth rate during 2010-11 to 2015-16. Although, again Jammu & Kashmir had highest growth rate in growth of number of total OATEs, Bihar secured the top position in case of total number of ESTTEs.

Growth rate per annum for employment in OATEs was highest in Chhattisgarh. In case of ESTTEs, Bihar had highest growth rate in employment. Also for all type of UTEs, Bihar had got the top position. Jharkhand, Bihar, Karnataka and Jammu & Kashmir were ranked after Chhattisgarh for growth in employment of OATEs where top five states for employment in ESTTEs were Jammu & Kashmir, Karnataka, Uttar Pradesh and Madhya Pradesh. Growth rate per annum for GVA of OATEs and ESTTEs were highest in Karnataka and Jammu & Kashmir respectively. Again, Jammu & Kashmir showed highest growth rate per annum for GVA of all type of UTEs. Uttaranchal shows negative growth rate per annum for OATEs, ESTTEs and all type of UTEs in every category except for GVA of OATEs and all type UTEs. Gujarat, Chhattisgarh, West Bengal, Andhra Pradesh, Delhi, Uttaranchal had shown negative growth rate for total number of ESTTEs where as Gujarat, Chhattisgarh, West Bengal, Delhi and Uttaranchal also had negative growth of employment in ESTTEs. In case of GVA, Delhi and Uttaranchal were the only two states which had shown negative GRPA.

**Table 10: Growth rate per annum (GRPA) of number of UTEs, employment and GVA during 2010-11 to 2015-16**

| States | Number | | | Employment | | | GVA | | |
|---|---|---|---|---|---|---|---|---|---|
| | OATEs | ESTTEs | All | OATEs | ESTTEs | All | OATEs | ESTTEs | All |
| Jammu & Kashmir | 11.18 | 20.12 | 12.48 | 7.3 | 18 | 10.4 | 18.32 | 68.2 | 33.84 |
| Bihar | 10.51 | 29.18 | 11.51 | 8.7 | 37.8 | 11.7 | 21.44 | 58.33 | 27.86 |
| Karnataka | 6.91 | 14.6 | 8.35 | 8.2 | 14.5 | 10.4 | 23.67 | 19.48 | 21.41 |
| Uttar Pradesh | 2.88 | 10.47 | 3.45 | 2.9 | 12.9 | 4.5 | 14.85 | 28.28 | 18.88 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Rajasthan | 6.72 | 10.44 | 7.18 | 5.3 | 8.9 | 6.2 | 10.75 | 27.89 | 16.92 |
| Himachal Pradesh | 2.15 | 6.13 | 2.66 | 0.2 | 9 | 2.3 | 11.78 | 24.22 | 16.82 |
| Jharkhand | 6.51 | 1.37 | 6.09 | 11 | 8.5 | 10.6 | 11.43 | 28.62 | 15.16 |
| Maharashtra | -0.77 | 5.95 | 0.31 | -0.5 | 6.1 | 1.5 | 7.18 | 15.56 | 11.12 |
| Kerala | 4.4 | 8.93 | 5.7 | 4.5 | 8.5 | 6.6 | 5.91 | 11.95 | 10.04 |
| Punjab | -0.39 | 4.44 | 0.56 | -1.4 | 3.5 | 0.5 | 4.72 | 15.14 | 9.74 |
| Gujarat | -2.49 | -0.5 | -2.21 | -1.7 | -1.3 | -1.6 | 8.6 | 7.73 | 8.2 |
| Tamil Nadu | 4.28 | 3.04 | 4 | 6.7 | 3.4 | 5.3 | 12.18 | 5.22 | 7.97 |
| Chhattisgarh | 9.28 | -2.05 | 7.2 | 12.3 | -2 | 7.6 | 13.55 | 3.26 | 7.93 |
| Haryana | -1.62 | 4.52 | -0.48 | -3 | 3.5 | -0.7 | 6.16 | 9.57 | 7.88 |
| Assam | 4.21 | 2.77 | 3.98 | 2 | 1.7 | 2 | 9.04 | 4.98 | 7.47 |
| Orissa | -5.8 | 4.88 | -5.2 | -5.6 | 7.4 | -4.2 | 1.05 | 23.56 | 7.37 |
| West Bengal | 0.68 | -4.35 | -0.03 | 1.3 | -4.9 | -0.6 | 10.82 | 0.45 | 6.41 |
| Madhya Pradesh | 0.91 | 7.38 | 1.6 | 0.4 | 11.4 | 2.7 | 6.58 | 3.73 | 5.36 |
| Andhra Pradesh | -0.49 | -0.24 | -0.46 | -0.8 | -0.5 | -0.7 | 5.63 | 3.04 | 4.33 |
| Delhi | -2.31 | -5.32 | -3.5 | -1.6 | -6 | -4.5 | 10.49 | -1.45 | 1.69 |
| Uttaranchal | -5.72 | -7.44 | -5.97 | -6.1 | -8.6 | -6.8 | 2.67 | -3.49 | 0.16 |
| India | 1.85 | 4.37 | 2.2 | 2 | 4.6 | 2.7 | 10.87 | 11.81 | 11.31 |

*Source: Authors' Calculation based on NSSO Unit Level data of 67th (2010-11) and 73rd (2015-16) rounds*

Overall performance and sustainability of any UTEs can be measured by their over time growth status. In table 11, the percentage distribution of the status of growth of UTEs in 2010-11 and 2015-16 across major states of India has shown. Status of growth was calculated on the basis of an enterprise's performance over last three years of its operation. It is generally divided under the three groups - expanding, stagnating and contracting. If an enterprise having expanding growth status that indicates growth was took place in the last three years for that particular enterprise. If over last three years of operation, the growth remain same then it will be called stagnating growth. If the growth of the enterprises is deteriorating over last three years of operation then the growth will be called contracting in nature. Andhra Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Jharkhand, Kerala, Madhya Pradesh, West Bengal were those states where the percentage share of expanding UTEs had declined in 2015-16 as compared to the year 2010-11 whereas the share of these UTEs had increased in Gujarat, Jammu & Kashmir, Maharashtra, Orissa, Punjab and Uttaranchal. In Karnataka, Rajasthan, Tamil Nadu and Uttar Pradesh share of expanding enterprises were more or less same for both the period.

In 2015-16, there were 12 states where the percentage share of stagnating UTEs were increased than 2010-11, namely, Andhra Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Tamil Nadu, Uttar Pradesh. Similarly, the name of the states where the share decreased in 2015-16 were Gujarat, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan and West Bengal. Uttaranchal was the only states where the percentage share of stagnating enterprises was constant in both periods. In case of contracting enterprises, Chhattisgarh, Gujarat, Jammu & Kashmir, Karnataka, Orissa, Tamil Nadu and Uttaranchal shown decreasing share whereas all others states shown increasing share for 2015-16 compared to the 2010-11.

**Table 11: Status of all types of UTEs across major states, 2010-11 and 2015-16**

| States | Expanding | | Stagnating | | Contracting | |
|---|---|---|---|---|---|---|
| | 2010-2011 | 2015-16 | 2010-2011 | 2015-16 | 2010-2011 | 2015-16 |
| Andhra Pradesh | 34.25 | 20.3 | 44.04 | 49.53 | 4.6 | 9.32 |
| Assam | 43.58 | 31.89 | 49.16 | 59.24 | 2.77 | 3.4 |
| Bihar | 48.47 | 37.06 | 40.71 | 41.28 | 2.08 | 7.75 |
| Chhattisgarh | 52.9 | 36.21 | 28.88 | 47.6 | 4.02 | 3.01 |
| Delhi | 36.35 | 17.4 | 35.5 | 52.39 | 8.56 | 18.05 |
| Gujarat | 24.2 | 34.66 | 43.98 | 41.75 | 11.34 | 4.01 |
| Haryana | 44.95 | 25.98 | 35.19 | 42.94 | 6.16 | 10.12 |
| Himachal Pradesh | 28.21 | 17.59 | 37.53 | 45.48 | 14.9 | 15.76 |
| Jammu & Kashmir | 46.77 | 52.63 | 37.5 | 32.92 | 5.03 | 3.76 |
| Jharkhand | 40.1 | 29.7 | 49.87 | 57.14 | 4.36 | 5.45 |
| Karnataka | 29.22 | 29.29 | 42.98 | 47.31 | 6.43 | 4.13 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Kerala | 33.84 | 21.58 | 34.34 | 38.82 | 10.32 | 13.93 |
| Madhya Pradesh | 41.77 | 39.95 | 36.78 | 34.5 | 7.43 | 8.06 |
| Maharashtra | 26.71 | 27.63 | 47.64 | 39.73 | 6.92 | 12.6 |
| Orissa | 37.43 | 39.36 | 42.01 | 37.58 | 8.46 | 7.82 |
| Punjab | 17.91 | 19.22 | 54.58 | 48.31 | 9.13 | 15.87 |
| Rajasthan | 25.17 | 25.45 | 43.08 | 35.55 | 11.6 | 13.26 |
| Tamil Nadu | 38.36 | 38.14 | 37.56 | 38.24 | 3.34 | 2.74 |
| Uttar Pradesh | 26.82 | 26.82 | 37.1 | 40.31 | 10.11 | 12.42 |
| Uttaranchal | 22.99 | 27.2 | 54.29 | 54.93 | 5.79 | 3.79 |
| West Bengal | 32.47 | 26.23 | 49.82 | 41.88 | 10.8 | 17 |
| India | 33.51 | 29.7 | 42.05 | 42.39 | 7.63 | 9.81 |

*Source: Authors' Calculation based on NSSO Unit Level data of 67th (2010-11) and 73rd (2015-16) rounds*

**VI. Analysis of Factors that affects Status of Enterprises of UTEs.**

For econometric analysis of the status of growth of UTEs here we consider three types of firms only. These are expanding, stagnating and contracting. We have ignored the firms whose status is not specified. Status of enterprise (STASE) of UTEs is multinomial and we have assigned the values 1, 2 and 3 for expanding, stagnating and contracting UTEs respectively and it depends on the specific characteristics of UTEs. The notations and specifications of status of enterprise and its determinants are presented in Table 12. As the depended variable is multinomial in nature so we have used multinomial logit model. It is assumed that we have a set of observations $Y_i$ for I = 1………n, of the outcomes of multiway choices from a categorical distribution of size m=3. Along with $Y_i$ there are a set of k observed values $x_1$, $x_2$, …..$x_k$ of explanatory variables like labour productivity (LPROD), nature of enterprises (ESTTE), location of enterprise (LOCN) and government assistance (GOVAS).

**Table 12: Notation, specification and summary Statistics of variables used in the regression model**

| Notation | Specification | Average | Min | Max | SD |
|---|---|---|---|---|---|
| | Dependent variable | | | | |
| STASE | Status of enterprises is categorized as 1 if expanding, 2 if stagnating, 3 if contracting | 1.62 (1.68) | 1 | 3 | 0.62 (0.64) |
| | Independent variables | | | | |
| ESTTE | Establishment Nature of enterprises is categorised as 1 other 2 | 0.69 (0.59) | 1 | 2 | 0.45 (0.49) |
| LOCN | Urban located enterprises is categorised as 1 other 2 | 0.47 (0.48) | 1 | 2 | 0.49 (0.49) |
| GOVAS | Whether UTEs is received government assistance (in the form of subsidy) or not, (Yes= 1, No=0). | 1.98 (1.99) | 0 | 1 | 0.10 (0.09) |
| LPROD | Labour productivity (in Rs.) of UTE is measured by gross value added per man-day. | 6194 (10503) | -150650 (-871602) | 883084 (1847100) | 9328 (19545) |

*Note: Figure in parenthesis indicates values of 2015-16.*

*Source: Authors' Calculation based on NSSO Unit Level data of 67$^{th}$ (2010-11) and 73$^{rd}$ (2015-16) rounds*

**Table 13: Multinomial logit regression**

| Regression Result for the year 2010-11 | | | | Regression Result for the year 2015-16 | | |
|---|---|---|---|---|---|---|
| Number of observations =91333 | | | | Number of observations =73148 | | |
| LR chi2(8)=3063.37 | | | | LR chi2(8)=1725.46 | | |
| Prob > chi2=0.0000 | | | | Prob > chi2 =0.0000 | | |
| STASE | Coefficient | z statistics | P values | Coefficient | z statistics | P value |
| Expanding (=1) | (base outcome) | | | (base outcome) | | |
| Stagnating (=2) | | | | | | |
| Constant | -0.5483401 | -3.88 | 0.000 | -0.649548 | -3.96 | 0.000 |
| ESTTE | 0.5548044 | 35.01 | 0.000 | 0.505357 | 30.46 | 0.000 |
| LOCN | -0.0510959 | -3.52 | 0.000 | -0.10992 | -6.72 | 0.000 |
| GOVAS | 0.2010553 | 2.85 | 0.004 | 0.331024 | 4.05 | 0.000 |
| LPROD | -0.0000288 | -23.47 | 0.000 | -0.000011 | -14.26 | 0.000 |
| Contracting (=3) | | | | | | |
| Constant | -0.9598823 | -4.36 | 0.000 | -1.143647 | -4.66 | 0.000 |
| ESTTE | 0.6454112 | 20.62 | 0.000 | 0.517047 | 18.56 | 0.000 |
| LOCN | -0.2529812 | -9.48 | 0.000 | -0.352181 | -13 | 0.000 |
| GOVAS | -0.4046961 | -3.68 | 0.000 | -0.130238 | -1.06 | 0.287 |
| LPROD | -0.0000565 | -19.73 | 0.000 | -1.57E-05 | -11.13 | 0.000 |

*Source: Authors' Calculation based on NSSO Unit Level data of 67$^{th}$ (2010-11) and 73$^{rd}$ (2015-16) rounds*

The results of two multinomial logit regressions are given in Table 12. The result of this regression shows that the ESTTEs are more likely to be expanding than stagnating and contracting in nature. Rural located and high labour productive enterprises are more likely to be expanding than stagnating and contracting. Government assistance significantly affected the expanding nature of enterprises.

## VII. Conclusions

In India the total number of unorganised trading enterprises (UTEs) and number of employment increased from 2010-11 to 2015-16. The increment of number of UTEs, employment and GVA for OATEs type was slightly higher than ESTTEs during this period. Whereas in every cases at all India level, growth rate per annum (GRPA) of ESTTEs type enterprises were higher than the OATEs during this five years duration. Particularly for growth of number of enterprises and employment this difference was very high and both had grown more or less similar rate. May be it happened due to the presence of large share of OATEs in total UTEs. While on the other hand, we tried to found the nature of ownership across caste variation in all India level where OBC had dominated in all types of UTEs in 2010-11 as well as in 2015-16. Second highest share of number of UTEs was captured by General category. There were very fewer share of seasonal and casual enterprises almost for every type and more than 95 percent enterprises were perennial in nature that is they operated more or less throughout the year. In case of relative share of number of UTEs, number of employment and GVA, Uttar Pradesh was highest in comparison to all other major states in 2015-16 whereas Uttaranchal and Himachal Pradesh had the least relative shares. The other six top states in respect of number of UTEs, number of employment and GVA were West Bengal, Maharashtra, Andhra Pradesh, Tamil Nadu, Karnataka and Bihar. These states solely had the major share in every respect. Jammu & Kashmir and Bihar only showed more than 10 percent GRPA in respect of number of enterprises during 2010-11 to 2015-16. Moreover, the GRPA of Jammu & Kashmir, Kerala and Jharkhand were more than 10 percent in respect of employment during that period. However, there were seven states which shown negative growth in number of enterprises as well as number of employment during 2010-11 to 2015-16. They were namely, Gujarat, Haryana, Orissa, West Bengal, Andhra Pradesh, Delhi and Uttaranchal. The GRPA of GVA in eight states like Jammu & Kashmir, Bihar, Karnataka, Jharkhand, Uttar Pradesh, Rajasthan, Kerala, and Himachal Pradesh were more than 10 percent during 2010-11 to 2015-16. Delhi and Uttaranchal had negative GRPA for ESTTEs of GVA. Again, in case of status of growth Jammu & Kashmir showed good sign. If we focused particularly for the case of West Bengal, share of expanding enterprises had fallen where share of contracting enterprises highly increased in 2015-16. Out of major twenty one states, there were only 7 states in total where the share of contracting enterprises had fallen from 2010-11 to 2015-16. The multinomial logit estimation showed that the ESTTEs are more likely to be expanding than stagnating and contracting. Rural location and higher productive enterprises are more likely to be expanding than stagnating and contracting. Also, government assistance significantly affects the expanding nature of enterprises.

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# Pathways out of Poverty: Special Emphasis on West Bengal

**Urbashi Guha[1], Sakhi Roy[2].**

**Abstract**

The present paper attempted to study the impact of the few selected policies taken by the government, NGOs, MFIs to eradicate the woes of poverty in West Bengal.The study focuses on the education, employment, food, health sector. The study entails the sources and causes of the challenges and tries to suggest the possible changes that can be incorporated to reduce the woes.The study shows in few places schemes lack the difference of theory and implementation revealing the demerits of the schemes along with merits thereby depicting the cause of deprivation. From the study we are able to conclude in reference to public expenditure, due to COVID 19 there is increase in expenditure and with the response of government we can say the schemes are working.

We have used Peacock Wiseman hypothesis to justify the working of the schemes taking into consideration the attempts taken by government specially during the pandemic situation.

**Keywords: Challenges,COVID 19,Government, MFIs, NGOs, Peacock Wiseman Hypothesis,Poverty, Theory and Implementation, West Bengal.**

**JEL Classification Codes : I 30, J23, R17.**

## I. INTRODUCTION

As India is one of the fastest-growing economies in the world, poverty is on the decline in the country, with close to 18 Indians escaping extreme poverty every minute, as per the World Poverty Clock. India has 86.8 million people living in extreme poverty which makes up 6% of its total population as of early 2021.

Some of the measures taken by national government in India to eradicate poverty, Annapurna, National Rural Employment Programme, National Maternity Benefit Scheme, National Old Age Pension Scheme, Nehru Rozgar Yojana, and some of the measures taken by the state government SwasthyaSathi, Civic Volunteer jobs, Kanyasree, Yuvasree, 100 days work, KhadyaSathi, Mid Day Meal Scheme.

A non-governmental organization is a non-profit group that functions independently of

1. Post Graduate Student, Amity University, Kolkata, West Bengal,urbashi2all@gmail.com
2. Assistant Professor, Amity University, Kolkata, West Bengal, roy.sakhi88@gmail.com

any government. NGOs, sometimes called civil societies, are organized on community, national and international levels to serve a social or political goal such as humanitarian causes or the environment. Mentioning few of them : Hope Foundation, Child In Need Institute, Child Rights and You, Smile Foundation, Village Financial Services Pvt Ltd.etc.

And as a step towards pathways out of poverty, microfinance institution offers financial services to low income populations. Almost all give loans to their members, and many offer insurance, deposit and other services.

### I.A. OBJECTIVES

1. To study the impact of schemes taken by government
2. To study the introduction of NGOs and Microfinance Institution.
3. Effects on health, food, education and employment sector after the implementation of scheme.

### II. MATERIALS AND METHODS

The secondary data involved in this project has been gathered from the published articles, government websites and website of NGO and microfinance institutions etc. Secondary data has been gathered for understanding the impact. MS Excel was used for plotting of graphs and figures.

### III.RESULTS AND DISCUSSION

To understand the impacts on food, health, education and employment sector we look at the schemes introduced by government and introduction of NGOs and microfinance institutions. We use the Peacock Wiseman hypothesis to understand whether the schemes are effective or not.The analysis of Peacock and Wiseman involves three related elements, namely,DisplacementEffect(to meet the increased expenditure due to social disturbances), Inspection Effect (with the expenditure increased, the government along with public review the revenue position and the need to find a solution of the important problems that have come up), due to displacement effect, the public expenditure goes up, and simultaneously the inspection effect rises the level of revenue and Concentration Effect (levels of public expenditure and revenue are thus stabilized to a new level till another disturbance occurs to cause a displacement effect).

**Food**

**Mid Day Meal Scheme**

Mid-day meal (MDM) is a wholesome freshly-cooked lunch served to children in government and government-aided schools in India. On 28 November 2001, the Supreme Court of India passed a mandate stating, "We direct the State Governments/Union Territories to implement the Mid Day Meal Scheme by providing every child in every Government and Government assisted Primary School with a prepared midday meal."

The MDMS was launched on 15th August, 1995 with a view to enhance enrollment, retention, attendance, reduce drop-outs, improve nutritional levels among primary children in class I to V and empower women through employment. Initially the students got uncooked food and that did not help the scheme achieve the objective. Consequently Cooked Mid-day Meal Programme was introduced in West Bengal in January, 2003 in 1100 schools with six districts to start with. The programme was further extended to the upper primary stage of Education (class VI to VIII) in government (including local body), Govt. aided school, and EGS/AIE centers in 2007-08. Thereafter, coverage of schools increased gradually and till 2013-14 (up to December) the programme has covered 7788809 students from class I-V of 68836 Primary Schools and Shishu Shiksha Kendras and 4519274 students of class VI-VIII of 14167 Upper Primary schools and Madhyamik Shiksha Kendras of the state.

**Table 1: Registered with reported schools (West Bengal) as on 03rdApril, 2021**

| Districts | Registered Schools | Reported Schools |
|---|---|---|
| Alipurduar | 1628 | 3 |
| Bankura | 4951 | 3 |
| Birbhum | 3825 | 1 |
| Cooch Bihar | 3247 | 3 |
| Dakshin Dinajpur | 2245 | 0 |
| Darjiling | 1070 | 1 |
| Hooghly | 4170 | 48 |
| Howrah | 3037 | 5 |
| Jalpaiguri | 2256 | 2 |
| Jhargram | 2350 | 0 |
| Kalimpong | 455 | 1 |
| Kolkata | 1958 | 53 |
| Maldah | 3311 | 0 |
| Murshidabad | 5876 | 1 |
| Nadia | 4128 | 1 |
| North 24 Pargana | 5859 | 60 |

| | | |
|---|---|---|
| Paschim Bardhaman | 1696 | 3 |
| Paschim Mednipur | 6520 | 4 |
| PurbaBardhaman | 4723 | 5 |
| PurbaMednipur | 5905 | 2 |
| Puruliya | 4317 | 0 |
| Siliguri | 803 | 0 |
| South 24 Pargana | 6210 | 5 |
| Uttar Dinajpur | 3024 | 2 |

Source: mdm.wbsed.gov.in

Source: mdm.wbsed.gov.in

**Figure 1: Registered with reported schools (West Bengal) as on 03rd April, 2021**

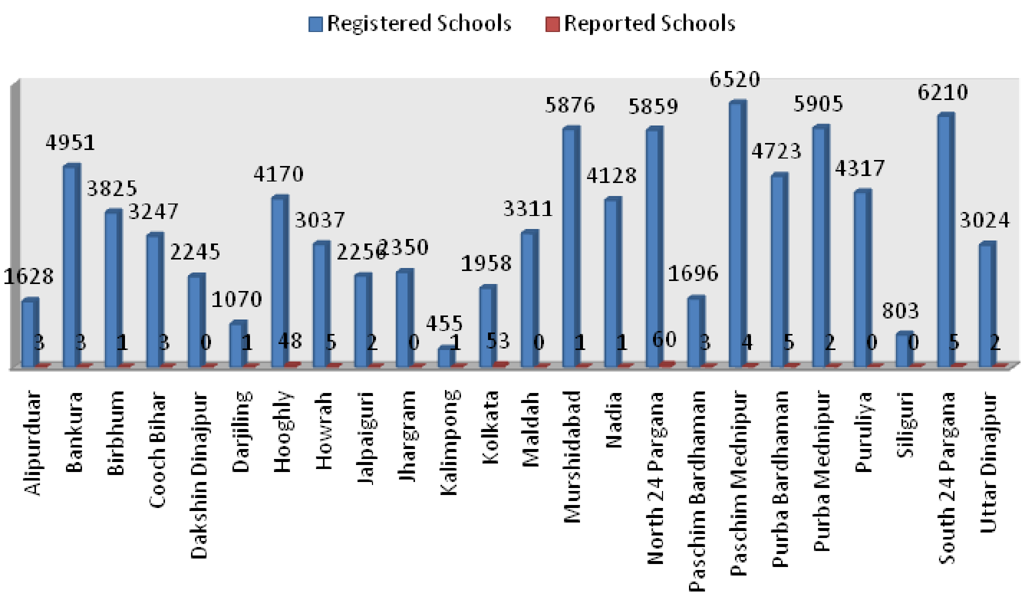



**Table2: Registered with reported schools (West Bengal) as on 03rdMay, 2021**

| Districts | Registered Schools | Reported Schools |
|---|---|---|
| Alipurduar | 1635 | 114 |
| Bankura | 4961 | 317 |

| | | |
|---|---|---|
| Birbhum | 3922 | 274 |
| Cooch Bihar | 3250 | 392 |
| Dakshin Dinajpur | 2196 | 325 |
| Darjiling | 1058 | 222 |
| Hooghly | 4174 | 105 |
| Howrah | 3043 | 410 |
| Jalpaiguri | 2255 | 299 |
| Jhargram | 2337 | 227 |
| Kalimpong | 458 | 234 |
| Kolkata | 1969 | 40 |
| Maldah | 3301 | 188 |
| Murshidabad | 5877 | 340 |
| Nadia | 4127 | 601 |
| North 24 Pargana | 5893 | 410 |
| Paschim Bardhaman | 1696 | 570 |
| Paschim Mednipur | 6533 | 172 |
| PurbaBardhaman | 4734 | 650 |
| PurbaMednipur | 5918 | 473 |
| Puruliya | 4390 | 590 |
| Siliguri | 806 | 440 |
| South 24 Pargana | 6222 | 77 |
| Uttar Dinajpur | 3019 | 302 |

Source: banglarshiksha.gov.in

Source: banglarshiksha.gov.in

From both the Table 1 and Table 2 and Figure 1 and Figure 2 we can see the number of reported and registered schools has increased.In Figure 2 registered school represents the total number of schools where mid day meal has been served on 03rd May, 2021.

Figure 2: Registered with reported schools (West Bengal) as on 03rd May, 2021

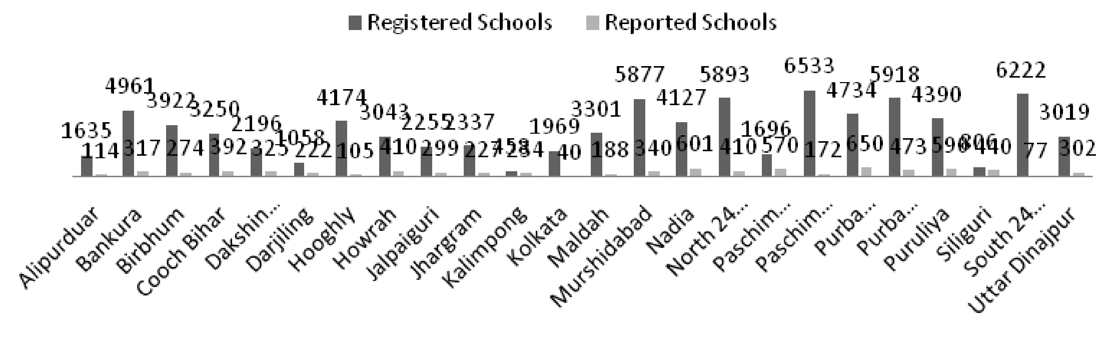



**Table3: Requirement of Food grains for first two quarters of 2020-21**

| Item | Quantity(in MTs) |
|---|---|
| Rice | 1019950.13 |
| Wheat | 20369727 |
| Total | 1223647.40 |

Source: Author's calculation based on mdm.nic.in data

**Table4: Allocation of food grains for the 3rd quarter of 2020-21 (For the period 01.10.2020 to 31.12.2020) Requirement of food grains for last six month of 2020-21 including drought affected areas and summer vacations as anone time measure**

| Item | Quantity(in MTs) |
|---|---|
| Rice | 1335481.99 |
| Wheat | 263509.39 |
| Total | 1598991.38 |

Source: Author's calculation based on mdm.nic.in data

**Table5: Requirement of Foodgrains for first two qtrs of 2021-22**

| Item | Quantity(in MTs) |
|---|---|
| Rice | 1005209.14 |
| Wheat | 192035.27 |
| Total | 1197244.41 |

Source: Author's calculation based on mdm.nic.in data

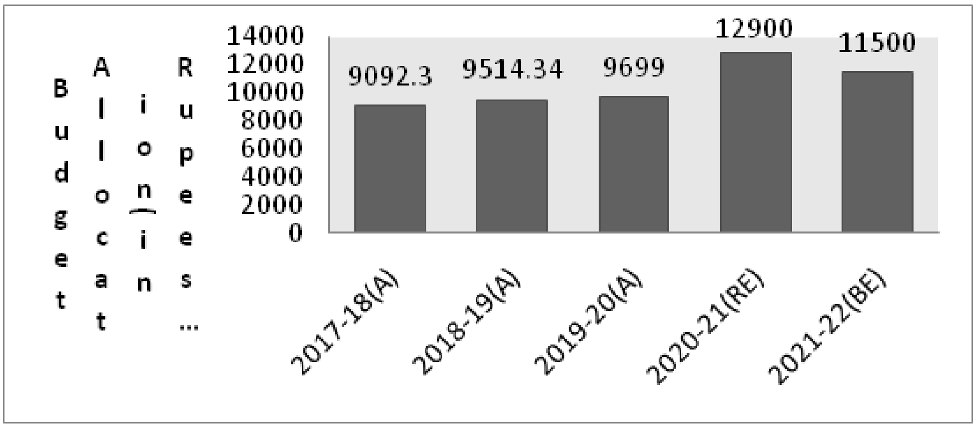
The effectiveness of any scheme can be justified when it is much required. From the above tables using peacock wiseman hypothesis, we can conclude the effectivess of mid day meal scheme the expenditure for requirement of Food grains for first two qtrs of 2020-21 for Rice and Wheat were 1019950.13MTs and 20369727 MTs, then from allocation of food grains for the 3rd quarter of 2020-21 we can see the displacement and inspection effect as quantity of Rice 1335481.99 MTs and Wheat 263509.39 MTs increased during the time of pandemic and then we can relate to concentration effect from allocation of foodgrains for first two qtrs of 2021-22 i.e. for rice 1005209.14MTs and wheat 192035.27MTs which show a stable situation from the quantity allocation. And from the increase in the number of schools in terms of registered and reported we can conclude schemes are working.

The Mid Day Meal is the world's largest school feeding programme reaching out to about 12 crore children in over 9.50 lakh schools/EGS centres across the country. Given the time of the pandemic there was distribution of the food under Mid Day Meal Scheme to the students by calling the parents and distributing the food to them.

The Annual Work Plan & Budget (AWP&B) of 2018-19 on Mid-day Meal scheme may be considered as advanced programme of works and activities proposed to be taken up with fund and food grains to be involved in the implementation of MDMS in 2018-19. Preparation of AWP&B for each year stands urgent and imperative, as Ministry of Human Resource Development (MHRD), Govt. of India approves the same and allots fund and food grains thereafter in the interest of smooth and uninterrupted functioning of MDMS in West Bengal. The higher population density obviously affects per capita resource allocation. Due to active interventions in all these fields, birth and death rates have dwindled more rapidly in West Bengal than in India as a whole. During the period 2001-2011, the decline in birth rate was 13.93% against that (17.77%) of the period 1991- 2001. Again, the decline in death rate has been decreased substantially. Infant mortality has also declined at a rate that is marginally higher than that of all India average. Life expectancy in West Bengal is 67 while the national average is 63.50. The demerit is the difference between theory and implementation. The expenditure for Mid-Day Meal scheme in West Bengal was Rs. 113916.42 lakhs in 2014-15. It was 10.07% of the expenditure for Mid-

Day Meal scheme in India. Allocation to mid-day meal has been reduced by 10.8 per cent in comparison to the revised estimates of 2020-21.

**Figure3: Budget 2021- National Programme of Mid Day Meal in Schools**




Source: Ministry of Finance | A: Actuals; RE: Revised Estimates; BE: Budget Estimates

Referring to Peacock Wiseman hypothesis we can infer the budget estimates is higher during the pandemic time and showing a stable position during 2021-22.

**Public Distribution System**

Public distribution system is a government-sponsored chain of shops entrusted with the work of distributing basic food and non-food commodities to the needy sections of the society at very cheap prices.Wheat, rice, kerosene, sugar, etc. are a few major commodities distributed by the public distribution system. During September 2013, Parliament passed the National Food Security Act (NFSA), 2013. The NFSA seeks to make the right to food a legal entitlement by providing subsidised food grains to nearly two-thirds of the population. The Act relies on the existing Targeted Public Distribution System (TPDS) mechanism to deliver these entitlements. The existing TPDS operates through a multi-level process in which the centre and states share responsibilities. The centre is responsible for procuring or buying food grains, such as wheat and rice, from farmers at a minimum support price. It also allocates the grains to each state on the basis of a formula. Within the total number of poor in each state, state governments are responsible for identifying eligible households. The centre transports the grains to the central depots in each state. After that, each state government is responsible for delivering the allocated food grains from these depots to each ration shop. The ration shop is the end point at which beneficiaries buy their food grains entitlement.From the reference of reaching out to people inconvenienced by the Covid-19 outbreak West Bengal government announced that people getting subsidised rice at Rs 2 a kg and wheat at Rs 3 a kg will get them free (maximum of five kilos a month) as of 22ndMarch,2020. The relief package will directly benefit about 7.85 crore people of the State. Infering Peacock Wiseman hypothesis we can say schemes are working.

**Akshaya Patra Foundation, 2000**

The Akshaya Patra Foundation is a not for profit organisation headquartered in Bengaluru, India. The Foundation strives to eliminate classroom hunger by implementing the Mid Day Meal Programme. It provides nutritious meals to children studying in government schools and government-aided schools. It also aims to counter malnutrition and support right to education of children hailing from socio-economically challenging backgrounds.Their vision is no child in India shall be deprived of education because of hunger and mission is to feed 5 million children by 2025.When the nation was under lockdown, Akshaya Patra aided the Government's effort by serving cooked meals and distributing grocery kits to low-income and marginalised population of the society comprising of migrant labourers, daily wage workers, construction site workers, and needy people in old age homes and night shelters.The cumulative number of grocery kits by Akshaya Patra Foundation for West Bengal counts to 1000 kits representing the increased number of expenditure as inferred in peacock wiseman hypothesis.

**Health**

**Swasthya Sathi**

SwasthyaSathi was announced in Cabinet No – 2625 dated 17th February, 2016, and Finance Department notification no – 1104-F (P) dated 25th February, 2016.

The scheme was officially launched by Hon'ble Chief Minister of West Bengal on 30th December 2016.

**Main Features of the Scheme:**

- Basic healthcover for secondary and tertiary care up to Rs. 5 lakh per annum per family.
- Paperless, Cashless, Smart Card based.
- All pre-existing diseases are covered.
- There is no cap on the family size and Parents from both the Spouse are included. All dependent physically challenged persons in the family are also covered.
- The entire premium is borne by the State Government and no contribution from the beneficiary.

- Online Swasthya Sathi Smart card is provided to each family on the day of Enrollment. Smart Card captures the details of the family members, Photographs, biometric, address, Mobile Number, SECC ID.
- Management of the scheme is in paperless IT platform from day one.

**Table 6: Swasthya Sathi – Government / Private Claims (Cumulative), 2021**

**Government**

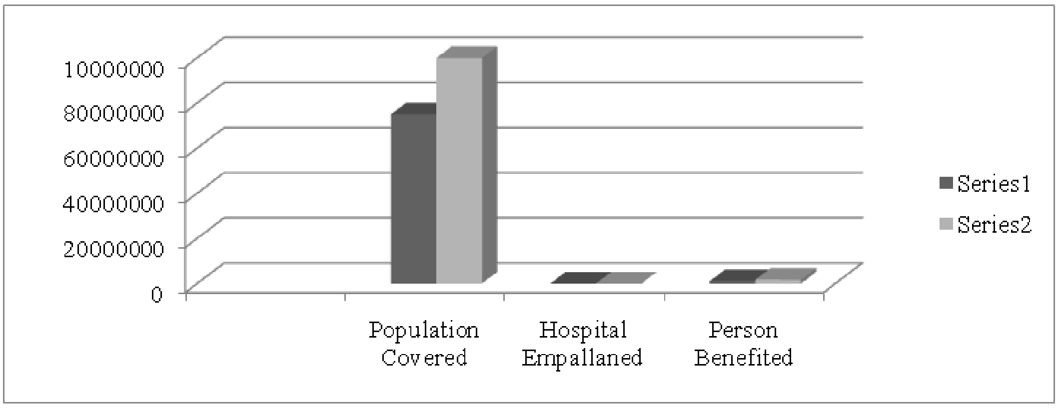
| | |
|---|---|
| Number of Patients Availed Benefit | 4,97,382 |
| Amount Claimed (in Rs.) | 205,56,94,463 |

**Private**

| | |
|---|---|
| Number of Patients Availed Benefit | 11,06,112 |
| Amount Claimed (in Rs.) | 1667,58,51,162 |

Source: swasthyasathi.gov.in

**Figure 4: Population Covered, Hospital Empallaned, Person Benefited**




Source: Author's calculation based on swasthyasathi.gov.in data

Series 1: Data for Apr 2020

Series 2: Data for Feb 2021

From the above figure we can infer using peacock wiseman hypothesis that the beneficiaries has increased as clearly depicted by the graph the increase in number of population covered, hospital empallaned and person benefited in Apr 2020 as compared to Feb 2021.

**Covid-19 Vaccine**

The intensity of the pandemic we all are aware about and the steps taken by government for vaccinating people all over the state is really a great initiative. Even the doses got exported to other country as a foreign aid. The people who would not have thought of taking the vaccine are able to have it. Now there is also the news very quickly the availabilty of vaccines will be found from aged 18 years. We can see the increased expenditure of government on health. The Economic Survey 2020-21 has strongly recommended an increase in public spending on healthcare services from 1 percent to 2.5-3 percent of GDP, clearly depicting the benefits.

**Education**

KanyashreePrakalpaseeks to improve the status and well being of girls, specifically those from socio-economically disadvantages families through Conditional Cash Transfers by incentivizing them to continue in education.

Department of Women Development and Social Welfare, Government of West Bengal (DWD&SW) has designed the KanyashreePrakalpa with the aim of improving the status and well being of the girl child in West Bengal by incentivizing schooling of all teenage girls and delaying their marriages until the age of 18, the legal age of marriage. KanyashreePrakalpa is a West Bengal Government sponsored scheme which will be implemented henceforth in all districts of the State.

**Components of the Scheme**

The scheme has two components:

1. The Annual Scholarship of Rs. 500/-(Rupees Five hundred only) for unmarried girls aged 13-18 years enrolled in classes VIII-XII in government recognized regular or equivalent open school or equivalent vocational/technical training course.
2. The One time Grant of Rs. 25,000/-(Rupees Twenty-five thousand only)for girls turned 18 at the time of application, enrolled in government recognized regular or open school/college or pursuing vocational/technical training or sports activity or is an inmate of Home registered under J.J. Act 2000.

Both the benefits under the scheme will be granted to girls who belong to families with annual family income not more than Rs. 1, 20,000/- (Rupees One Lakh and twenty thousand only. The bar for family is not applicable if the girl has lost both parents, is physically challenged (40% disability) or is inmate of J.J. Home.

**Table 7: Beneficiaries of Kanyashree**

| | |
|---|---|
| Registered Institutions | 17854 |
| Enrolled Applications | 21780891 |
| Sanctioned Applications | 21449273 |
| Unique Beneficiaries | 7043462 |

Source: Author's computation based on wbkanyashree.gov.in

As on 26thMarch, 2021

In the span of 8 years from 2013-14 to 2020-2021, among the districts of West Bengal under Annual Scholarship and One Time Grant, Complete Application Received and Sanctioned applications in terms of lower and higher number of beneficiaries.

**Table 8: Beneficiaries of Kanyashree Lower in terms of district**

| Time Frame | Annual Complete Application Received | Scholarship Sanctioned Application | One Time Complete Application Received | Grant Sanctioned Application |
|---|---|---|---|---|
| 2013-14 | Alipurduar(0), Bardhaman Paschim(0), Jhargram(0), Kalimpong(0) | Alipurduar(0), Bardhaman Paschim(0), Jhargram(0), Kalimpong(0) | Alipurduar(0), Bardhaman Paschim(0), Jhargram(0), Kalimpong(0) | Alipurduar(0), Bardhaman Paschim(0), Jhargram(0), Kalimpong(0) |
| 2014-15 | BardhamanPaschim(0), Jhargram(0), Kalimpong(0) | BardhamanPaschim(0), Jhargram(0), Kalimpong(0) | BardhamanPaschim(0), Jhargram(0), Kalimpong(0) | BardhamanPaschim(0), Jhargram(0), Kalimpong(0) |
| 2015-16 | Jhargram(0), Kalimpong(0) | BardhamanPaschim(0), Jhargram(0), Kalimpong(0) | Jhargram(0), Kalimpong(0) | BardhamanPaschim(0), Jhargram(0), Kalimpong(0) |
| 2016-17 | BardhamanPaschim(0), Jhargram(0) | BardhamanPaschim(0), Jhargram(0), Kalimpong(0) | BardhamanPaschim(0), Jhargram(0) | BardhamanPaschim(0), Jhargram(0), Kalimpong(0) |
| 2017-18 | Kalimpong(4880) | Kalimpong(4776) | Kalimpong(995) | Kalimpong(991) |
| 2018-19 | Kalimpong(6872) | Kalimpong(6869) | Kalimpong(1226) | Kalimpong(1225) |
| 2019-20 | Kalimpong(7253) | Kalimpong(7163) | Kalimpong(1541) | Kalimpong(1541) |
| 2020-21 | Kalimpong(7251) | Kalimpong(7226) | Kalimpong(1726) | Kalimpong(1721) |

Source: Author's calculation based on wbkanyashree.gov.in data

From the above table we can conclude among the districts of West Bengal, Kalimpong is having the lowest number of beneficiaries. Kalimpong District is working on its own from 2017-18 onwards, after it's bifurcation from Darjeeling. And from the data we can also state that Alipurduar, Bardhaman Paschim, Jhargram, Kalimpong were able to introduce the impact of the scheme.

**Table 9: Beneficiaries of Kanyashree Higher in terms of district**

| Time Frame | Annual Complete Application Received | Scholarship Sanctioned Application | One Time Complete Application Received | Grant Sanctioned Application |
|---|---|---|---|---|
| 2013-14 | North 24 Parganas (184505) | North 24 Parganas (181256) | North 24 Parganas (16128) | North 24 Parganas (15596) |
| 2014-15 | North 24 Parganas (194186) | North 24 Parganas (188555) | North 24 Parganas (31975) | North 24 Parganas( 30061) |
| 2015-16 | North 24 Parganas (208367) | North 24 Parganas (206708) | North 24 Parganas(33706) | North 24 Parganas(33043) |
| 2016-17 | North 24 Parganas (219691) | North 24 Parganas(215101) | Murshidabad (35593) | Murshidabad (34693) |
| 2017-18 | South 24 Parganas (236607) | South 24 Parganas (234189) | North 24 Parganas (34798) | North 24 Parganas (34651) |
| 2018-19 | South 24 Parganas (250476) | South 24 Parganas (250290) | North 24 Parganas (39763) | North 24 Parganas (39587) |
| 2019-20 | Murshidabad (254801) | Murshidabad (253973) | Murshidabad (53186) | Murshidabad (52905) |
| 2020-21 | North 24 Parganas (243560) | North 24 Parganas (242689) | Murshidabad (57259) | Murshidabad (56716) |

Source: Author's calculation based on wbkanyashree.gov.in data

From the above table we can conclude among the districts of West Bengal, North 24 Parganas, South 24 Parganas, Murshidabad is having the highest number of beneficiaries. And from the number of beneficiaries impacted as depicted on Table 8 and Table 9, we can conclude the scheme is successful.

## Employment

**Village Financial Services Pvt Ltd (VFS)** is one of the oldest and most reputable microfinance institutions in eastern India, having begun this work in 1996-97 and taken formal shape in 2006. The first MFI in the east to have become an NBFC, it has nearly half a million borrowers across over 20,000 villages in 13 states.

The mission of VFS is to strengthen the socio-economic condition of the society by providing financial and other support services mainly to the poor women in a sustainable manner and strive to yield a competitive return.

VFS offered products include Briddhi Loan, Sri Briddhi Loan, Sambriddhi Loan.

**Table 10: BriddhiLoan**

| | | |
|---|---|---|
| 21.48% Rate of Interest | 12 months Tenure | 1% Processing Fee |
| Up toRs 30,000 Loan Amount | Joint LiabilityGroup Loan Type | 23 No. of Instalments |

Source: village.net.in

**Table 11: Sri Briddhi Loan**

| | | |
|---|---|---|
| 21.48% Rate of Interest | 24 months Tenure | 1% Processing Fee |
| Up toRs 60,000 Loan Amount | Joint LiabilityGroup Loan Type | 51 No. of Instalments |

Source: village.net.in

**Table 12: Sambriddhi Loan**

| | | |
|---|---|---|
| 24% Rate of Interest | 24 months Tenure | 1% Processing Fee |
| Up toRs 2,00,000 Loan Amount | Individual Loan Type | 23 No. of Instalments |

Source: village.net.in

VFS offers financial and non-financial activities:-

Under financial activities, VFS offers loans of Rs 20,000 to Rs 60,000 to women borrowers from impoverished and marginalized communities by organizing them into small groups. And under non-financial activities VFS conducts workshops in collaboration with the Reserve Bank of India(RBI), RBI has noted that an appreciable amount of money remains unclaimed in bank accounts. The RBI uses this money to fund a Depositors' Education and Awareness (DEA) programme to promote financial literacy. The Reserve Bank of India has given VFS the task of implementing this programme in three West Bengal districts—Murshidabad, North Dinajpur and South Dinajpur. For each program, VFS chooses a batch of 40 people from different economic strata. The participants do not have to be borrowers of VFS.

Participants Learn:

- The importance of opening a bank account and the documents required to do so.
- The importance of budgeting, saving and responsible borrowing.
- To maintain a good credit score.
- To switch from demand drafts and cheques to electronic money transfers.
- To lodge complaints at a bank and the Banking Ombudsman.
- To use ATM services.
- The importance of investing money only in registered entities.

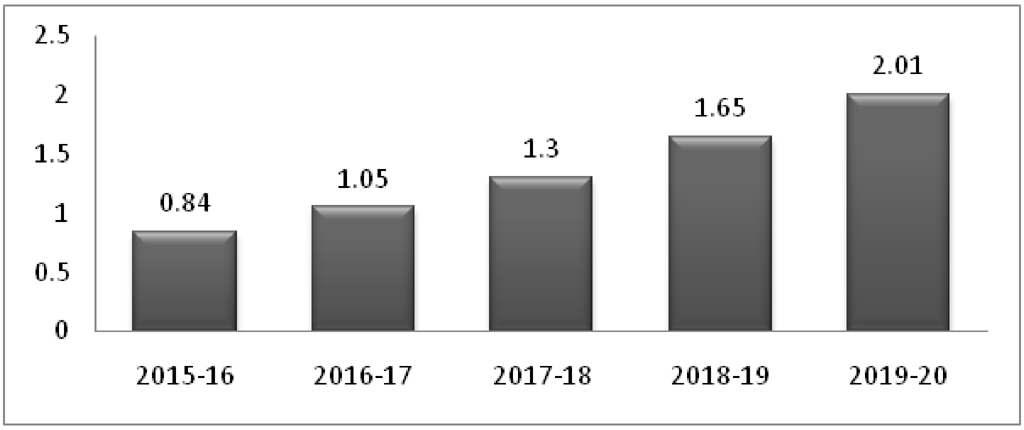
Also they help borrowers to shape and review business plans, understand the basics of financial accounting through Customer Awareness Training (CAT) programme, encourage them to join the wider banking system and help them resort to digital transactions and take advantage of various government schemes for the poor. To meet the rising aspirations of its old MFI customers, the company has rolled out SME loans on a pilot basis in March 2018.

With footprints across 11 states, VFI today boasts of a customer base of 4.71 lakhs. As of Q3 2018-19, VFS sees its Assets under Management cross Rs 1,000 crore. As at the end of 2019-20, the company operated 246 Branches in the states of Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Sikkim, Tripura, Uttarakhand and West Bengal, 22021 Villages, 13 States, 1090.96Cr Portfolio Outstanding, 501647 Borrowers.

It has also been estimated that about Rs. 260 crore of loans to 65,000 micro borrowers may have been impacted by cyclone Amphan that tore through parts of West Bengal and Odisha.

On August 23, 2015, Bandhan Bank was born with a bouquet of products for customers in all segments. In its journey from an NGO to an NBFC and finally a universal bank, the objective has remained reaching out to the unbanked and the under-banked and providing last-mile banking for all, big or small.

**Figure 5: Number of customers of Bandhan Bank (in crores)**




Source: bandhanbank.com

During pandemic time the moratorium was a blessing for the users and helped them to repay their loan afterwards without pressure. From this increased number of customers we can understand the importance and impact of the introduction of NGOs.

## IV. CONCLUSION

From the study we are able to conclude with reference to public expenditure, due to COVID 19 there is an increase in expenditure and with the response of government we can say the schemes are effective referencing to Peacock Wiseman hypothesis.It can be concluded from the steps taken by the West Bengal government to enhance rates for at least 33 packages on requests from private hospitals to revise rates of various treatments under the SwasthyaSathi health insurance scheme. West Bengal Chief Minister Mamata Banerjee has also recently extended the Swasthya Sathi health insurance scheme to cover the entire population of the state, starting December 1, 2020. The relief package of free ration during Covid 19 outbreak directly benefited about 7.85 crore people of the state and the moratorium measures during pandemic time. Also as of 14 Aug, 2020 67 lakh girls empowered by Kanyashree scheme.The study shows in few places schemes lack the difference of theory and implementation revealing the demerits of the schemes along with merits thereby depicting the cause of deprivation.

## V.RECOMMENDATIONS

From the current situation we can conclude that the schemes are working. There are merits and demerits to any schemes. There are demerits in public distribution scheme, midday meal budget allocation but the schemes have positively impacted many lives.The challenge is to close the gap between theory and implementation and overcoming these challenge will enable us to fulfill the objective of poverty reduction.

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# ANNOUNCEMENT AND CALL FOR PAPER

## BEA $42^{nd}$ Annual Conference

**On $12^{th}$ And $13^{th}$ March, 2022**

*Organized by*: In collaboration with the

**Department of Economics Vidyasagar University**

**Bangiya Arthaniti Parishad (Bengal Economic Association) announces the $42^{nd}$ Annual Conference of the Parishad** in collaboration with the Department of Economics Vidyasagar University On **$12^{th}$ And $13^{th}$ March, 2022. Professor Abhirup Sarkar of** the Economic Research Unit, Indian Statistical Institute , Kolkata is the **Conference President.** Large number of teachers ,scholars and researchers from Economics and related disciplines of social sciences, from different parts of India and abroad, are likely to participate in the prestigious two day national event. In addition to the presentation of research papers by scholars in technical sessions,special lectures by eminent Economists of the country in the form of **S.N.Sen Memorial lecture, A.K.Dasgupta Memorial Lecture, Giribala Karmakar Memorial lectures** plus a symposium on ***Contemporary Farmers' Plights*** will constitute the major feature of this conference. There shall also be special lectures and presentations from different fields and organizations . The conference is being arranged in the ***on line*** mode as a WEBINAR in conformity with the new normal situation created by the pandemic and associated distortions/disruptions.

**About the Theme**

**Theme of the Seminar is Transformation Of The Indian Economy**

The transformation of Indian Economy from an economic laggard to one of the most rapidly growing economies in the world is a burning issue in the academic arena. Between 1975 and 1990, the country's economic growth accelerated at a rate higher than 5 percent and then increased to more than 6 percent after 1992. Subsequently, the Indian economy grew at 8.8 percent between 2003 and 2007, and thereby transformed itself into one of the fastest- growing economies in the world along with China. In the aftermath of the global financial crisis, India continued to grow more rapidly (6.7% during 2008–9) than all the major Asian economies, except China. To address these questions, it is necessary to trace how India embarked upon this growth path resulted from the strategies pursued by its policy makers in the regime of globalization and liberalization.

Historically, an economy would undergo structural changes when growing: agriculture's contribution to the gross domestic product would decline steadily, industry's contribution would rise steadily and compensate, and later, the services sector would follow. Contrary to this historical pattern, the services sector has bypassed the industrial sector in India, and it dominates the economy. An empirical analysis of the nature and causes of structural change in the Indian economy shows that the industry and the economy are driven by the services sector, and the sector's growth and dominance is influenced by external factors, such as foreign direct investment.

Moreover, India's economy has accelerated sharply since the late 1980's, but agriculture has not. The rural population and labour force continue to rise, and rural-urban migration remains slow. Despite a rising labour productivity differential between non-agriculture and agriculture, limited rural-urban migration and slow agriculture growth, urban-rural consumption, income, and poverty differentials have not been rising. Urban-rural spillovers have become important drivers of the rapidly growing rural non-farm sector.

**Under this backdrop the seminar/ Webinar calls for paper under the sub-themes:**

**a.Three Decades of Economic Reforms in India :**We have already operated under the Economic Reforms paradigm for three decades , and a review and evaluation of the progress of the economy and its sectors and people are in order at this stage.

**b.Agricultural Marketing and Farming Problems:**This is a contemporary problem that have many dimensions that have surfaced in contemporary discourses of the political economy of India's development and transformation.

**c. Social Sector Infrastructure and Development in India:** The pandemic has exposed the stark inadequacies and developments of human and physical infrastructure in the field of health and education and public policies in this regard require critical evaluation.

**Call for Papers:** You are requested kindly to contribute your original research papers for the seminar/Webinar along with an Abstract of around 500 words within January 31, 2022 ( positively) on any aspect of the above theme , and send them to the Secretary ,Bangiya Arthaniti Parishad at **bap.bea1980@gmail.com.** The registration fee of Rs 200/- (Rupees Two hundred only) per participant [ except for Invited Speakers and Guests) may kindly be sent to the S/B a/c of the Bangiya Arthaniti Parishad at Punjab National Bank,Ganguly Bagan Branch by NEFT or GOOGLE PAY. The Savings Bank A/C **No is 0364010287371 with IFSC Code :PUNB0036420**.

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Principal, Prabhu Jagat Bandhu College, Andul, Howrah, & Secretary,
Bangiya Arthaniti Parishad; Email : dr_skray@yahoo.co.in.

**Dr. Sebak Kumar Jana**
Professor of Economics, Department of Economics, Vidyasagar University,
Midnapore, West Bengal PIN: 721102; Email: sebakjana@mail.vidyasagar.ac.in
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