ISSN 0972-1185

ARTHA BEEKSHAN

JOURNAL OF BANGIYA ARTHANITI PARISHAD
(Bengal Economic Association)
ASSOCIATE MEMBER OF THE INTERNATIONAL ECONOMIC ASSOCIATION

Special Issue dedicated to the 43rd Annual Conference of the Parishad

Vol. 32, No.1 & 2

June & September, 2023

Sponsored by :

NABARD

ARTHA BEEKSHAN
Vol. 32, No. 1 & 2
June and September, 2023

ARTHA BEEKSHAN

(Journal of the Bengal Economic Association)
Reg. No. 53099/92

Artha Beekshan is a quarterly refereed journal in economics and allied subjects published by the Secretary, Bangiya Arthaniti Parishad. Contributed articles relating to research in economics and allied subjects are considered for publication by the Editorial Board. The reviews of books and monographs are also often published in this journal. From 2013 onwards, the journal has been selected by ICSSR as belonging to the set of top 210 social science journals in India, and indexed regularly by ISID. Authors are requested to follow the guidelines, appended in the volume ,while submitting their papers. The publisher shall not assume any responsibility to share the views of the authors contained in their articles.

Online submission of papers for the journal may be made to : **arthabeekshan.bea@gmail.com .** Each submitted paper is peer-reviewed double-blind by a panel of distinguished Referees. For subscription, Contribution of Articles, Book Reviews, Advertisements, Collection of Copies and for any other communication contact, Office of Bangiya Arthaniti Parishad, 87/277,Raja S.C.Mallick, Road, Kolkata-700047.

We are indebted to ICSSR, New Delhi for the support received for the publication of the journal.

ARTHA BEEKSHAN

(JOURNAL OF BANGIYA ARTHANITI PARISHAD)
(Bengal Economic Association)
Vol. 32, No. 1 & 2, June and September 2023.

Special Issue dedicated to the
43rd Annual Conference of the Parishad

BANGIYA ARTHANITI PARISHAD
(Bengal Economic Association)
[Associate Member — International Economic Association]

Office :
Bangiya Arthaniti Parishad, 87/277, Raja S. C. Mallick Road,
Ganguly Bagan, Kolkata - 700 047.

Journal of the Bengal Economic Association, Artha Beekshan,
Vol. 32, No. 1 & 2, June and September 2023. Reg. No. 53099/92

Online submission of papers for the journal may be made to :
arthabeekshan.bea@gmail.com .
Each submitted paper is peer-reviewed double-blind by a panel of distinguished Referees. For subscription, Contribution of Articles, Book Reviews, Advertisements, Collection of Copies and for any other communication contact,
Office of Bangiya Arthaniti Parishad, 87/277, Raja S.C.Mallick, Road, Kolkata-700047.

Artha Beekshan, Volume 32, No. 1 & 2, June and September 2023.

GROWTH, DISTRIBUTION AND DEVELOPMENT[1]

Biswajit Chatterjee[2]

Abstract

Since the days of Classical Political Economy , it is recognized that the combined solution to the problems of economic growth and distribution is essential for the continuation of capitalist development. In this lectur,I shall review the theoretical perspectives on growth-distribution connect, followed by discussion on alternative closure rules. The growth-distribution interlinkage has also been examined from the perspective of the development economics , and the empirical research on this. We move to the paradigm of inclusive growth, and focus on recent discussions based on Piketty and others . We end the discussion by reflecting on the Indian case and the policy challenges ahead.

Key Words :Economic Growth, Closure Rules, Inequality, Inclusive Growth paradigm.

JEL Classification Codes:B22, I32, O11.

I. Introduction

I am indebted to the members of the Bangiya Arthaniti Parishad for reposing faith in me to preside over its 43rd Annual Conference . My long stint with the Parishad since 1982, and my involvement for a fairly long time with the development and progress of this academic Association of economists in India and abroad might have influenced their decision. I consider it a privilege and honour to step into the shoes of my eminent predecessors and share with you my thoughts on this important occasion, and I remain thankful to both the members and well wishers Parishad. In my presidential address. I have chosen to reflect on the connect between growth, distribution and development . This theme has remained central to economic theory and modern economic analysis, and over the years, it has shaped debates in development policy and analysis.

To produce wealth and to share it , are the two major problems of development discourses, claims Victor Hugo in *Les Misérables ,* and to effectively solve these two problems , they need be solved together, he argued. *Since the days of Classical Political Economy ,* it is recognized that the combined solution to the problems of economic growth and distribution is essential for the continuation of capitalist development. Ricardo pinned the principle focus of political economy as growth cum distribution, and numerous authors

1. Presidential address, 43rd Annual National Conference of Bangiya Arthaniti Parishad, March 18, 2023.
2. Retired Professor of Economics, Jadavpur University, Kolkata-700032.

belonging to Classical, Neo-Classical, Marxian and even post-Keynesians have picked this thread to explain the contours of development even in the current century. According to Ricardo, political economy is an enquiry into the laws that determine the division of the produce of industry amongst the classes who contribute to its formation. Since the "laws which regulate distributive shares" may vary across the alternative theoretical perspectives, it is important to note them clearly to avoid confusions. In the Ricardian and Marxian Theory, it is the "Surplus Principle", where the supply of labour is assumed to be perfectly elastic [in the former, because of a "natural rate of wages" fixed in terms of "corn"; and in the latter, because of the existence of a "reserve army" of labourers that prevents wages from rising above a subsistence level, or the cost of "reproduction" of labour, fixed in terms of commodities in general] and the capitalists appropriate all surplus value from labour in the process of accumulation, which governs these distributive shares. In Neo-Classical Theory, on the other hand, it is the "Marginal Principle", where both labour and capital are remunerated on the basis of their respective marginal productivities, which determine the shares of each. Finally, in the Keynesian Theory, it is the "Multiplier Principle", where the investment to output ratio determines the share of profits in income through a coefficient of sensitivity built on the difference of the capitalists' and wage-earners' marginal propensities to save. Thus, the problem of distribution becomes a problem of how productive factors are remunerated, but not a problem of how the factors themselves are distributed, although under certain conditions these two problems may be related. Growth maximization under competitive conditions would warrant equal distribution of productive capital between sectors (see Borrero and Garza, 2019), but for the inequality in factor income across classes and its link with the pattern of growth, nature of capital accumulation and technical progress, a separate mechanism need be studied carefully. There is no denying that growth and distribution are two sides of the same coin, and that this crucial interdependence/ connection would constitute the core of political economy.

Economic growth constitutes the basic element in analysing the dynamic behaviour of capitalist economies, and there have been rich discussions in the literature on macro-dynamics regarding the properties of long run growth path of a typical capitalist economy. While one can trace the history of theory of growth economics to writings of classical economists like Smith, Ricardo and Marx, there have been plethora of empirical research on the actual working of the growth processes in identification of the determinants of economic growth and even to test whether the growth process has been convergent across nations or not. It is found that impressive economic growth notwithstanding, many countries in the developing world experienced sharp rise in income inequality across individuals, which has aggravated social tensions and political turmoil in different parts of the world. The implications of inequality in the distribution of assets and income for the

economic growth of nations need to be understood carefully while drawing the design of development policy in the less developed countries. Some of the issues also have bearing to the functioning of the world economy in the sense of generating uneven development and lack of convergence in the growth process, while some others explicitly take into the complications of less developed economies while assessing within country inequality across income groups. In the literature on development economics also, there have been attempts to find out the constraints on growth process in developing countries, and to identify policy interventions to remove these constraints so as to usher in rapid economic growth and distributional equality, and hence development of the less developed economies.

The plan of the present lecture is as follows. In section II, we shall review the theoretical perspectives on growth-distribution connect since the days of Classical political economy, followed by discussion on alternative Closure rules in section III. The growth-distribution interlinkage has been examined from the perspective from the development economics in section IV. While in section V, we shall reflect on the paradigm of inclusive growth, in section VI we focus on recent discussions based on Piketty and others . Section VII concludes.

II. Theoretical Perspectives

The Classical economists , writing in the background of rising industrial capitalism in England , was primarily concerned with economic growth as it suited the notion of material progress of mankind. The link between economic growth and income distribution had been at the core of Classical Economics a la' Adam Smith, David Ricardo and Karl Marx. Essentially, the Classical economic theory aimed to explain the process of economic growth through accumulation of capital and through technological change and the consequences thereof on the distribution of income between factor owners in an otherwise capitalist economy. The relationship between growth and distribution is interdependent in Classical schema of analysis -while the growth process and the stages of development affect the distribution of wealth in a society, the pattern of income distribution in turn determines the possibilities of growth. In a capitalist system, capitalists as owners of capital, hires labour at wages determined in the market, and land rent is similarly determined and accrues to the owners of land . The surplus of output that remains after payment of wages and rent accrues to the capitalist as profit, which he retains for self-consumption as well as for accumulation .It is the accumulation of surplus through investment that propels the dynamics of the capitalist system. The theory of value ,developed by the Classical economists, serves the purpose of valuation of heterogeneous good in terms of an invariant measuring rod to measure surplus and profit used for accumulation. As growth through capital accumulation generates land rent , the size of profit dwindles and in the long run, the rate of profit shows a tendency to fall to zero and when it does, there is arrival

of the stationary state with zero rate of growth . Thus there exists an intimate relationship between economic growth and income distribution among factor shares (labour, land and capital) and the relation can be affected by technological innovation which might postpone and delay the arrival of stationary state in a capitalist economy. While Smith, Ricardo and Mill predicted long run convergence to stationary state as the outcome of accumulation, Marx linked it with the withering away of the capitalist system.

Growth equilibrium of a regularly progressive economy, writes Hicks (1965), is characterized by uniform rate of expansion of macro-variables over time , such that they bear constant proportionality between them, given tastes, technology, correct anticipation about future events by agents and homogenous nature of capital goods. The existence of such growth equilibrium is not a problematic, given the parameters, although the adjustment mechanisms towards such equilibrium may not always be converging in nature. The Classical Stationary state is a special case of such a growth equilibrium of a regularly progressive economy with zero rate of growth uniformly over time , but this typically obtains for a specific type of income distribution and generation of savings. In general, at the growth equilibrium, there exists an inverse relation between the real wage rate and the rate of profit, both fixed in terms of price of the consumption good. If the real wage rate is given exogenously , and so also the profit rate , the equilibrium growth rate will be dependent upon the existence of a proportional savings function, given the unique production technique. To quote Hicks (1965), "If the real wage(w) is given, the rate of profit is determined from the wage equation, and the rate of profit is then determined from the savings equation. The higher the real wage , the lower the rate of profit and the lower the rate of growth. If the rate of growth is given, the same two equations work the other way round." If all wages are consumed and if savings is made out of profits only , we have $\mathbf{G = s_1.r}$, where $\mathbf{s_1}$ is the savings propensity out of profits , and **r** is the rate of profit, and the golden rule growth equilibrium obtains when $\mathbf{s_1=1}$ **.** Since the rate of growth is always less than the rate of profit (as $s_1<1$) , the lowest growth rate that is consistent with equilibrium depends on the lowest acceptable rate of profit – if the profit rate could fall to zero , so also can the rate of growth. The maximum possible growth rate is s_1 times the maximum possible profit rate, and this is limited by the technique and the limit below which wages cannot fall. Since the specifications of the consumption good and the capital good are assumed to be the same proportionality along the steady state balanced growth path, the growth equilibrium obtains with one technique of production.

The traverse of price adjustments off the equilibrium would be complicated when we have multiplicity of capital goods and multiplicity of production techniques so as to find out the optimum savings rate along with the equilibrium growth rate. When we have multiple techniques, the optimal choice will change with changes in the wage rate and the profit rate, i.e., as income distribution changes, techniques of production changes and

this affects growth equilibrium as well. When production technique is fixed and also the proportion of the total income saved , a change in prices could have no effect in changing the growth rate unless there is a difference in the co-efficient ratios of the two industries. It may be noted that when one considers the transitional dynamics of movement from one equilibrium to another, prices of goods change and so also the rate of profit which compels a switch from one technique of production to another, and consequently, there is a change in the distribution of income between factor owners. Therefore, a regularly progressive economy would experience a change in the distribution of income even when the growth path is stable over time. The exact traverse back to equilibrium balanced growth path would depend on the structure of production and the degree of substitutability between capital and labour and here the role of long-lived capital becomes important along with the assumption regarding the rate of depreciation or replacement investment that sustains the equilibrium growth path.

The existence of steady state theory of growth equilibrium would be dependent upon the assumption of a given technique, a given distribution of income between wages and profit and a homogeneous capital good, which bears proportional relation with the composite consumption good in growth equilibrium. Off the steady state, when we seek to outline the transitional dynamics towards equilibrium configurations ,we need the assumption of a given technique or efficiency frontier to determine the rate of interest when real wage is given exogenously , or alternatively to determine the real wage rate and the corresponding rate of interest for an exogenously given production technique. Therefore, to derive the price system, we need additional assumption . If we use the Classical or the Ricardian closure rule, namely, that the real wage rate is given exogenously (such that there exists a perfect elastic supply of labour at this wage rate), we could obtain the complete price system. But the corresponding quantity system, and in particular its rate of growth, need to be determined by reference to the form of the savings function. Alternately, one may assume that rate of expansion of labour supply is given, and that full employment of labour obtains in every period, and the rate of capital accumulation is dependent solely upon the rate of interest , which , given the production technique ,also governs the required rate of saving . One sector neo-classical model of Solow generates per capita income growth only by introducing exogenous technical progress , and a specific type of technical progress is consistent with steady state growth. Balanced growth in the neoclassical model requires that asymptotically all technological change is purely labour augmenting and the elasticity of inter-temporal substitution tends to a constant. In the modern versions of neoclassical theory of endogenous growth, attempts have been made to explain how investment in education or human capital formation, R&D expenditure propel growth of per capita income in the long run through endogenous breakthroughs in knowledge and its spillovers over time. In the two sector version of neoclassical growth

model a' la Uzawa, the existence of steady state equilibrium is also contingent upon the assumption that under competitive commodity and factor markets , the factor shares in national output remains unaltered for all time periods. Any allocation with constant growth rates for output, capital and consumption must be a balanced growth path with constant factor shares as time **t** $\rightarrow\infty$ **.**

III. Closure Rules

Closure rules are used in theoretical economics to obtain a deterministic solution to a system of simultaneous equations, which may not be exactly determined. Alternative theoretical perceptions on economic growth indicate a set of relations from which different paradigms of growth could be obtainable by the use of alternative closure rules. These relations often constitute either some building blocks of the theoretical model, or the results of comparative dynamics off a steady state equilibrium. In particular , we have (a) the inverse relationship between real wage rate (W) and the profit rate (r) : W = G(r) , with G'<0; the positive relationship between growth rate (g) and profit rate (r) : g = F(r), with F'>0; and the inverse relationship between consumption per head (C) and growth rate (g): C= θ(g), with θ'< 0 . All these relationship presume given technology, given factor prices, given well-behaved inter-temporal preferences , and given institutional parameters. The stability of steady state equilibrium guarantees that the growth process converges to unique solutions in long run, although the short-run paths may be fluctuating in nature. The effects of parametric variations and the adjustment paths to the equilibrium again are likely to vary between alternative theories of economic growth.

Different closure rules are suggested by alternative theories of growth . The Neo-classical closure rule states that **g=n ,** that is the rate of growth of the economy is given by the natural rate of growth (population growth rate plus efficiency in labour use) . Given **n** exogenously, we can determine the rate of profit, real wages, consumption per head, and capital intensity from the relationships mentioned above , under conditions of steady state equilibrium(denoted by starred * values of the variables) . The neo-classical closure rule ensures steady state growth rate of output with full employment of labour force , which is given exogenously. Under competitive conditions of the labour market, it is argued in neoclassical models of growth, that a persistent tendency for **g>n** must over the long run put pressure on the supply of labour that will increase the real wage rate; conversely if **g<n** persistently, growing unemployment will drive the real wage down. When there is parametric increase in **n,** it will raise **g*** and **r*** to augment the rate of savings to make the faster rate of investment possible and reduce **C*.** When the savings rate rise, it has no impact on the economy's long-run steady state rate of growth , consumption per head and the output-capital ratio, but it diminishes the rate of profit and improves the real wage rate in the new steady state equilibrium.

The Neo-Marxian closure rule sets the real wage rate exogenously fixed at $\omega = \bar{\omega}$ in the long run, determined by the rate of exploitation, which reflects the relative bargaining strength between the classes of capitalists and labourers . With real wages fixed exogenously, the long run growth rate ,the profit rate , and consumption per head could be determined from the above system of equations, and any exogenous shock or institutional reforms would alter the rate of growth and rate of profit rate in the capitalist economy. An increase in real wage rate reduces the growth rate and the rate of profit , but increases consumption per head in the long run; an increase in the saving rate , will on the other hand, enhance the growth rate, but reduces consumption per head, keeping the long run rate of profit unaltered. It may be noted that Ricardo, who assumed that the real wage rate measured in terms of corn was fixed at the subsistence level , would also visualize the same process of capital accumulation and distribution of income , although in his schema of things, the size and also the rate of profit would fall in the long run . We can get similar picture even in the Lewis's model of economic development with surplus labour .We can therefore characterize the above closure rule as the Classical or the Lewisian one.

The Neo-Keynesian closure rule posits the uncertainty in investment decisions in a capitalist economy due to 'animal spirits" of the entrepreneurs which stand in the way of absorbing full employment savings in the long run equilibrium. Within the bounds set by the minimum rate of profit acceptable to the capitalists, the neo-Keynesian equilibrium growth rate may be fixed by aggregate demand constrained investment behaviour and there may be multiplicity of equilibrium, some of which may be unstable. It is fixed g=g*, and traces out the other variables from the above relations. A parametric variation (rise) in g* will increase r*, but depress ω and C. A redistribution of income from wages to profit would increase the savings rate, which would reduce both g* and r*, but enhance real wage rate and consumption per capita. When the rate of profit is fixed at r=r* exogenously by the price-making capitalists in an imperfectly competitive market, we get the Neo-Kaleckian closure rule, where, ceteris paribus, a higher desired rate of accumulation would be associated with higher rate of capacity utilization. If the growth equilibrium takes place with significant under-utilisation of capacity, then a redistribution of income towards wages(through reduction in capitalists' mark-up) would ,via effective demand expansion and greater utilization of installed capacity, stimulate growth rate and rate of profit and consumption per head. Changes in the parameters of the investment function and the average savings rate would have the same effects on growth as in the Neo-Keynesian model, but they do not change the real wage rate.

IV. Development Perspective

The second half of the 20th century has witnessed significant surge in the literature on the development in economies considered "poor" or "underdeveloped" in the 1950s. Notwithstanding the discussions of the limits to growth, and the impact of growth on cultural values and national wellbeing, the issues of distribution of income and inequality thereof , have been extensively discussed in the modern theories of economic development . In the immediate post-war period, the focus was on rapid growth and industrialization (Rosenstein-Rodan, 1943; Mahalanobis , 1963).It was believed that the best way to reduce poverty was to initiate the process of growth acceleration, and the trickle down mechanism would take care of distribution. Arthur Lewis (1954) also predicted that inequality would initially increase, as labor started to move from the low income traditional sector to the high income modem sector. According to Lewis (1954) model, inequality would rise with per capita income, and once the surplus labor got exhausted , increases in per capita income would continue, but with narrowing inequality. Lewis (1983) emphasized , '*Development must be inegalitarian because it does not start in every part of an economy at the same time".*

Philippe Aghion and Patrick Bolton(1997) have developed a model of growth and income inequalities in the presence of imperfect capital markets to analyse the trickle-down effect of capital accumulation. Moral hazard with limited wealth constraints on the part of the borrowers is the source of both capital market imperfections and the emergence of persistent income inequalities. Three main conclusions are obtained from this model. First, when the rate of capital accumulation is sufficiently high, the economy converges to a unique invariant wealth distribution. Second, even though the trickle-down mechanism can lead to a unique steady-state distribution under laissez-faire, there is room for government intervention: in particular, redistribution of wealth from rich lenders to poor and middle-class borrowers improves the production efficiency of the economy both because it brings about greater equality of opportunity and also because it accelerates the trickle-down process. Third, the process of capital accumulation initially has the effect of widening inequalities but in later stages it reduces them: in other words, this model can generate a Kuznets curve. Since the initial distribution of wealth, assets and income in such an economy are unequal, emphasis on growth factor augments and sharpens the existing inequality, which can be corrected only by redistributive mechanisms undertaken by the government. There needs to be a sharp increase in investment by the state to attain a very high growth rate in the economy to ensure automatic trickle down which remains inoperative in view of imperfections in capital markets, and high borrowing rates for the poor.

One of the major stylized facts about long-run processes of economic development is the Kuznets curve—the inverse-U shaped pattern of inequality. In his famous paper "Economic Growth and Income Inequality", Simon Kuznets (1955) argued that as countries developed, income inequality first increased, peaked , and then decreased, and documented this using both cross-country and time-series data. Kuznets argued that even if within-sector inequality is constant, and also the ratio of mean sectoral incomes, the shift of population between sectors at first produced widening of income inequality and then narrowed it. The inverted U arises in his model due to the fact that the sector(non-agriculture) to which people migrate in the process of development is the sector with the higher mean income as well as higher internal inequality. Varying numerical assumptions regarding sectoral inequalities and Sectoral income ratios would place the inequality in the range of 0.6 to 0.8, he argued. Adelman and Morris (1973) used analysis of variance with data on the size distribution of income by quantiles for 44 less developed countries. They found that all the less developed countries in the sample experienced significant decline in the share of income accruing to the poorest, as the process of development started, although the share of income accruing to the poorest 60 per cent of the population declined at a slower rate. The cross- country relationship could be either inverted U shaped or J-shaped. Studies on inequality-development nexus based on cross country regressions that followed were many , mostly based on heterogeneous data and varied samples, often inclusive of developed countries, and the results were also mixed. These studies in general assumed that the relationship between income shares of the poorest 40 per cent and per capita GNP was quadratic in the log of per capita GNP, and may be conditioned by a set of dummy variables capturing characteristics such as whether the country is socialist or not, dualistic or not, or rich in resources or not. Although these studies are in general supportive of the inverted U hypothesis, some argued that the location of the peak depended on the sample composition and the specific functional forms used .

The empirical validity of the "Kuznets curve" has been intensively investigated, but the evidence is mixed.. Historical investigations of Western European countries tend to support Kuznets' conjecture—e.g., in England, the Gini coefficient for income inequality rose from 0.400 in 1823 to 0.627 in 1871, but fell to 0.443 in 1901 (Williamson, 1985). The evidences from France, Sweden, and Germany also followed this pattern. On the other hand, evidence from Norway and the Netherlands suggested monotonically declining inequality from the mid-nineteenth century. Moreover, the evidence from more recent experiences of development is less supportive of the Kuznets' hypothesis. While data from some Latin American countries, such as Colombia and Brazil, seem consistent with the hypothesis, Asian countries such as South Korea, Japan, and Taiwan have experienced monotonically falling inequality. A successful theory of the Kuznets' curve should therefore not only explain the inverse-U shaped pattern of inequality in the de-

velopment experience of European economies, but also account for the lack of such a relationship in the histories of many Latin American and Asian countries.Many of these cross-country studies examined patterns of income distribution and economic growth in a correlative sense and examined , for example, whether the middle-income countries have higher inequality than lower-income or higher-income countries, with no causality implied.

Cline (1975) and Ahluwalia (1976) estimated regressions of income inequality on per capita national income, entered non-linearly. Two functional forms were used. One is to include per capita national income and its square (or logarithms thereof) as explanatory variable. The other form is to take per capita national income , and its inverse with negative slopes for both explanatory variable to generate an inverted U by OLS estimates . The inverted U pattern is confirmed for both top 20 per cent income share, and bottom 40 per cent of income share. The most cross-section studies confirm inverted U pattern of relationship, but with very poor $\mathbf{R^2}$ (0.2) or less . Since inverted U is weakly supported by cross- section regressions , and since the temporal effects are likely to stronger, the faith in the inverted U tendency as obtained from various cross sectional studies seems to have shifted in favour of time-series panel data estimation methods. When panel data methods were used, it was found that that when country fixed effects are included and the model was estimated using the first differences, the coefficients of income and income squared were not found to statistically significantly different from zero at conventional levels. Thus within country differences may overwhelm or negate across country differences.

A long literature (see Benabou,1996 for a survey) estimated a long-run equation with growth between 1990 and 1960 regressed on income in 1960, a set of control variables, and inequality in 1960. Estimates of such equations generate negative coefficients for inequality, but many such relations are caused entirely by omitted variables. Until the late 1990s, results from the empirical literature in general indicated that more inequality acts as a deterrent to future growth prospects of nations. The negative effect of inequality is obtained from cross sectional OLS estimation of growth rates, measured over a single interval of 20 to 30 years as a function of several variables, including a measure of inequality. With the availability of larger and better quality data set of Deininger and Squire (1996), empirical research has evolved to include the panel estimation methods-like fixed effects (FE) and first difference GMM panel estimators. The panel approach estimated a set of repeated growth observation in several countries as a function of time varying variables, after controlling for unobserved time-invariant country-specific characteristics , and reported a positive effect of inequality on growth (see Banerjee-Duflo,1993, for similar conclusion). Banerjee and Duflo (2003) have argued that ,instead this sign pattern could be explained by the misspecification of the linear effect of inequality that is commonly estimated. If the real effect of inequality on growth is non-linear, a linear spec-

ification is likely to yield a negative effect of inequality with a cross-sectional estimation method , and a positive effect in a fixed effects analysis. Banerjee and Duflo (2003b) regress growth (or changes in growth) non-parametrically on changes in inequality and find the relationship to be an inverted U shape. In other words, both reductions and increases in inequality seem to be accompanied by a fall in growth - this result may either be due to omitted variables, or by the poorly measurement of inequality. It may be noted that while inequality might affect growth, growth per se may also affect the distribution of wealth. It is meaningful to focus on causal mechanisms that connect the wealth distribution to investment or growth outcomes.

Thus, it is clear that if the path of growth-inequality relationship is of uniformly negatively sloped, then growth process directly trickles down and there is spread of the benefits of growth to the lower end of the income distribution. If ,however , economic growth is accompanied by rising income inequality and then followed by falling inequality, then trickle down operates only in the long run. The path , therefore , becomes circuitous and often long-drawn , and how long is the period required for inequality to diminish in a growing economy depends on the initial distribution of wealth and income in a given country and the speed of growth , which is likely to exhibit a non-linear path and is unlikely to be uniform for all developing countries.

V. Paradigm of Inclusive Growth

A new paradigm of development, called the ***inclusive growth paradigm*** has surfaced in contemporary discussions on development policies according to which the primary focus of development has to be faster economic growth generated from the productive use of inputs and total factor productivity growth in an environment of not controlled but judicially regulated markets, while at the same time including in the growth process those who were left out by the hitherto initiated growth programmes. An important corollary of this strategy is that the strategy of growth must contribute to greater distributive equity and poverty reduction within the framework of democratic governance that allows individuals the freedom to choose freely the capabilities that one has reason to value from a range of alternatives. As per this paradigm of development , removal of inequality of distribution in income and wealth across persons has become the top agenda for development policy , such that instead of relying on the *trickle down mechanism*, there is spread of the fruits of development from the bottom layers itself, without sacrificing macroeconomic stability, but may be at the cost of slower yet sustained rate of economic growth in developing nations. The principal characteristics of the inclusive growth (IG) strategy of the development process are the following:

(a) IG focuses on **economic growth** which is a necessary and crucial condition for poverty reduction, and it adopts a long term perspective and is concerned

with **sustained growth**. For growth to be sustained in the long run, it must be **broad- based** across sectors. Issues of structural transformation for economic diversification therefore take a front stage. Secondly, it must also be **inclusive** of the large part of the country's labor force, where inclusiveness refers to equality of opportunity in terms of access to markets, resources and unbiased regulatory environment for businesses and individuals.

(b)` IG focuses on **both the pace and pattern of growth.** How growth is generated is critical for accelerating poverty reduction, and any IG strategies must be tailored to country-specific circumstances.

(c) IG focuses on **productive employment** rather than income redistribution.

Hence the focus is not only on employment growth but also on productivity growth.

(d) IG strategy links redistribution mechanism as an integral part of growth

process to address inequality in asset or income so as to ensure that benefits of growth are evenly shared. IG is thus in line with the **absolute definition of pro-poor growth**, but not the relative one.

(e) IG is typically fueled by market-driven sources of growth with the government playing a facilitating role.

The above definition of inclusive growth is in line with the absolute definition of pro-poor growth, but differs from it in a number of ways: (i) absolute pro-poor growth can be the result of direct income redistribution schemes, but for growth to be inclusive productivity must be improved and new opportunities for employment created; and (ii) the pro-poor growth concept has traditionally focused on growth and poverty measures whereas the inclusive growth definition focuses on ex-ante analysis of the sources of, and constraints to sustained, high growth and poverty reduction. In terms of the *absolute* definition, growth is considered to be pro-poor as long as poor people benefit in absolute terms, as reflected in some agreed measure of poverty (Ravallion and Chen, 2003). In terms of the *relative* definition, by contrast, growth is "pro-poor" if and only if the incomes of poor people grow faster than those of the population as a whole, i.e., inequality declines. It may be noted that *the focus on inequality in the relative definition, could lead to sub-optimal outcomes for both poor and non-poor households***.** For example, a society attempting to achieve pro-poor growth under the relative definition would favor an outcome characterized by average income growth of 2 percent where the income of poor households grew by 3 percent, over an outcome where average growth was 6 percent, but the incomes of poor households grew by only 4 percent. While the distributional pattern of growth favors poor households in the first scenario, both poor

and non-poor households are better off in the second scenario. *There is broad recognition that when poverty reduction is the objective, then the absolute definition of pro- poor growth is the most relevant*.

Measurement of IG

Suppose the population is arranged in the ascending order of their income. Let Yi is the average income of the bottom *i* percent of the population, where *i* varies from 0 to 100 and Z is the mean income. Let Y* be the average income of the society if the income of everyone in the population is same (i.e. if income distribution is completely equitable). In this case Y* would equal Z, and if Y* < Z, there shall be inequitable distribution of income. Define **ω** = Y*/ Z. For a completely equitable society, **ω=1**. Inclusive growth requires increasing Y*, which could be achieved by: (i) increasing **Z**, i.e. increasing average income through growth; (ii) increasing the equity index of income, **ω**, through increasing equity via redistribution ; or (iii) a combination of (i) and (ii). Growth is more inclusive if dY*> 0. It also allows us to decompose inclusive growth into income growth and change in equity. The first term is the contribution of increase in average income (keeping income distribution constant) while the second term is the contribution of changes in the income distribution (keeping the average income unchanged).Inclusive growth depends on the sign and the magnitude of the two terms as are shown below.

Table 1. Inclusiveness Criteria

dZ>0	d ω >0	Unambiguously Inclusive
dZ>0	d ω <0	Higher per capita income at the expense of equity (could be inclusive if the percentage change in Z > the percent change (in ω
dZ<0	d ω >0	Equity objective is achieved at the cost of average income contraction
dZ<0	d ω <0	Unambiguously non-inclusive

A plausible way of judging inclusiveness of the growth process is to consider the distribution of income /expenditure across the quintile classes. The simple test of inclusive growth is to check whether the inequality in the distribution has remained invariant

over time or has diminished. In terms of the relative view of inequality, we could say that inequality over time, in the presence of growth in per capita income, has remained unchanged when each person's income has increased by the same proportion. In terms of a wholly absolute view of inequality, however, we would expect over-time invariance in inequality when each person's income has increased by the same amount.

There are *two* important pathways to achieving inclusive development. First, is the employment expansion which is linked with economic growth, and more particularly with the nature of growth, i.e., whether job creation at the micro-level is associated with economic expansion. The rationale is that productive job creation will be associated with income generation at the lower stratum of income distribution and will directly transfer the benefits of growth to those who are hitherto bypassed because of variety of reasons. This will create both demand and supply side linkages to propel growth with equity. The second alternative is inequality mitigation through direct and redistributive taxation, which in principle can reduce the incidence of inequality and poverty in a growing economy , but difficult to accomplish in practice due to political economy reasons, particularly in developing nations. Piketty (2014, 2015) has advocated global taxation on capital, and the Indian policy makers recently have proposed imposition of surcharge on income-tax of very high income group, due mainly to high share of profit, but the outcome on inclusivity of the growth process seem uncertain, particularly in the absence of well –designed *additional* targeted transfer mechanism, while most of the existing redistributive mechanisms in India are either inefficient or mis-targeted.

Since the initiation of the economic liberalisation reforms in1991, there has been a surge in the growth performance of the Indian economy , although that this growth has been skewed across sectors in the sense that the sluggish growth in the country's agricultural sector has been accompanied by spectacular impressive growth in the high-skilled services sector. In such structural transformation of the Indian economy , the manufacturing sector has grown in modest rates due to the operation of several constraints .According to Banerjee and Piketty(2005) , one of the outcomes of this unequal growth across sectors has been that while the income of a few has grown, the majority have not benefitted much, raising income inequality. This rise of inequality in income and wealth distribution has been accompanied by augmentation of social and religious inequalities that persisted in India over the ages. Available statistics indicate that most of the Indian states have become unequal over time, consistent with the national trend. Inequality has increased the most in faster-growing states,implying worsening of relative economic outcomes with growth .Again , even though poverty has reduced in

faster-growing states, the intensity of poverty as indicated by the PGI has not changed much , suggesting that the reduction in poverty in the periods of growth is brought about by improvement in outcomes for households very close to the poverty line. The growth-inequality linkage therefore warrants a fresh look.

There have been fascinating literature on poverty and inequality in India since independence. However, most of the studies on poverty and inequality in India focused on how overall inequality in income distribution has undermined the 'trickle down' effect, i.e., the higher the inequality in the income distribution, the lower the growth elasticity of poverty. The focus has , however, now shifted to the income disparity between the richest 1% (or 0.01 %) and the bottom 50%, following the publication of Piketty's(2014) magnum opus, demonstrating that rising income inequality is a byproduct of growth in the developed world.

VI. Growth and Inequality : Which way Now?

Based on two centuries of historical data from 20 countries, Thomas Piketty's epoch-making book *Capital in the Twenty-First Century(2014a)* documented the long period trends in the top income and wealth shares for the last two centuries, and estimated time series for the top 10 percent and the top 1 percent of the two distributions. Piketty's estimates of American income inequality are limited to the twentieth century, but his wealth estimates began in 1810. Piketty argues that as long as the rate of return to capital is higher than the rate of growth in the economy (Piketty's famous equation r > g), the owners of capital will accrue an ever larger share of the economic pie. Thus inter-temporal rise in inequality in the distribution of income is due to the uneven distribution of wealth and inherited capital which has propelled the forces of generation and augmentation of income inequality between persons, and even between nations. In his own words, *the fundamental source of inequality is the unequal ownership of capital , more so of human capital between persons and nations* Piketty (2015). He has offered a deductive approach to the issue of inequality, starting with the two "fundamental laws of capitalism". The first one is : (1) $\alpha_t = r_t\beta_{t,}$ where α_t stands for the share of capital incomes in total national income, r_t is the average rate of ("pure", according to the author) return on capital, and β_t := Kt/Yt is the ratio of capital stock on annual income. Piketty used this accounting relation to deduce r_t from the observed α_t / β_t ratio. The second law is the famous Harrod-Domar equation : (2) $\beta = s/g$, where s stands for the households' saving rate and g is the real growth rate of the economy. Piketty uses these two relationship with vast historical data in the world economy, particularly in the US to highlight the recent and massive resurgence of a rising weight of capital in the economy (relative to economic activity) and high inequalities in income distribution. In his opinion, these trends are not random-they obey a long-lasting logic of capital accumulation, whose effects have been

softened in the 20th century, by wars, fiscal policies not favourable to rent economies, and strong post-Second World War economic growth.

Another other major argument of Piketty (2014a) has been that there is ample evidence that during the last two centuries, the rate of return on capital $\mathbf{r}_t$ (which comes from (1)) was often significantly higher than the annual growth rate**,** $\mathbf{g}_t$**.** In the very long run, $\mathbf{r}_t$ would consequently have always stayed above 4%. But, if $\mathbf{g}_t$ is bound to remain under 1.5%, the consequence is that the difference, $\mathbf{r}_t - \mathbf{g}_t$, will be kept equal to 2 to 3 points of national income. In such a case those already possessing capital will be able to become richer far more rapidly than the rest of the population. This is especially true for employees, whose salary is their only source of income. It may be noted that Piketty's thesis is not that the increase in income and patrimonial inequalities would lead to any internal contradiction of the capital accumulation logic. This is not surprising , since $\mathbf{r > g}$ in the long run is perfectly compatible with standard equilibrium conditions in neoclassical models. His main objective has not been to transform capitalism — the immanent forces that, keep the differential, $\mathbf{r}_t - \mathbf{g}_t$**,** at its current level would stay in place — but ***to correct*** the distortions of patrimonial distribution created by this differential.

According to Piketty (2014a), the second fundamental law could be approximately validated in the very long run in a group of key economies (vide the empirical observation of Piketty and Zucman (2014) .Even with a very generous degree of approximation ,this law is nowhere verified at a given moment. Since the world we live in is predominantly a monetary one ,in contrast to a Harrod-Domar's and Solow's universe of *real* economies, the second law would make sense only if the relative price of capital does not significantly differ from the price of consumption goods. According to Piketty (2014) , the debate on capital –labour split and more so on the unequal distribution of capital ownership prompts discussions on how to tackle such inequality in income and wealth distribution. He favoured the imposition of a global tax on wealth that might at least reduce net differences in the returns to labor and capital.

Since such progressive redistribution mechanism would benefit *some* and hurt *some others* at least in the short run, there are debates regarding his recommended redistribution mechanism. Among the various critiques addressed to his analysis ,the first set points to within-factor inequality, i.e., inequalities in the distribution of wage income across individuals, whereas Piketty's book for most part is really about the relative returns to capital vis-à-vis labor, i.e., between- factor inequality. It is also not clear how wealth inequality across people in society could be tackled by a tax on income from capital alone . Indeed , there is ample inequality in the asset holdings among those people that do possess wealth- indeed most measures of wealth inequality, be it land inequality or housing inequality, show higher rates of wealth inequality (by, say the Gini measure)

than hold for income inequality .The political economy of asset redistribution appears to be much more difficult than redistribution of income via taxation.

Piketty's influential narrative of the dynamics of wealth inequality in capitalist economies and the distribution of income between capital and labour, poses important challenges to the researches on inequality and well –being. It must be understood that capitalism in the contemporary world have long deviated from the idealized vision of perfect competition – there are imperfections in markets of commodities , factors, as well as financial instruments , and there have been significant technological progresses in different sectors within a nation and between nations, with varying effectiveness, such that it becomes meaningless to rely on dynamic general equilibrium version of neoclassical economics , as has been attempted by Piketty and his followers. Perhaps one could go back to the analysis of Michael Kalecki(1971) on the dynamics of capital accumulation and income distribution in an imperfectly competitive capitalist economy, which is integrated to the working of the world economy in an era of globalization.

An important step to reduce the incidence of rising inequality could be expansion of public spending on the social sector of the economy, viz, education and health. It is expected that public expenditure on social services would help in redistribution of income, as these services tend to provide "virtual income" to the poor by freeing up resources spent on privately provided services. Per capita real expenditure on education and health could provide the poor an opportunity to invest in human capital and augment their future income potentials. Available studies , however, indicate that in India such expenditure has in fact widened income inequality by benefitting the relatively well off more than the poor . Limited institutional capacity of the states, corruption, and the inefficiency of government bureaucracy are cited as possible reasons for such outcomes. Rahul Anand et al. (2014) and Chadha and Nandwani (2019),argue that such puzzling results are due to inefficiency in implementation , although on a priori basis, the expected outcome would certainly be inequality reducing.If education and health is made a public good for all with no exclusion clause, and if care and efficiency is forthcoming , then such spending would strengthen the other redistributive mechanisms, like transfer and employment generating schemes, and are sustained for a long period, the inequality breeding effects of capitalist accumulation could be minimized and the objective of moving towards inclusive and sustainable development in India-*Sab Ka Sath Sab ka Vikas*- could be achieved in the medium term.

VII.Conclusion

Growth theory has predicted the possibility of worsening the distribution of income between wage and profit as the growth process moves along. The resultant inequality in functional distribution of income in particular and income or personal distribution in gen-

eral is a universal world-wide phenomenon. Attempts to measure inequality and estimate its relationship with economic growth and to test for the conditions of convergence of growth rates of per capita income of countries , have resulted in rich literature on the subject. Yet the generation of earnings and income inequality continued , and in developing countries extreme inequality and poverty and associated deprivations plague the lives of a sizeable sections of human race. In the context of economic development, the effects of growth trickling down to the lower stratum of income distribution are serious concerns to both analysts and policy makers , and employment expansion rather than transfer or subsidies as means of redistribution to correct the imbalances of not trickling down of the growth process, requires serious attention. The worsening of income distribution, particularly of rising inequality between wages and profits in the process of growth has raised the issue of its link with the onset of economic crisis in the capitalist world. It marks the revival of the questions of classical political economy on the growth-distribution trade offs. It is argued that the main economic factor that has led to the economic crisis in the developed world since 2008 is the paucity or contraction of aggregate effective demand , which is the result of inequality in income distribution. The Keynesian overtone of the above argument needs also to be tested rigorously against time series data, as the villain of the effective demand shortage is the withdrawal of consumption spending of the households in the current generation because of overspending on consumption by the earlier generations with the help of over borrowing through the financial markets. In a labour surplus developing country like India , which has faced massive poverty, unemployment and deprivations of exclusions of various forms , inclusive growth would warrant large scale investment by the government in weak and labour intensive sectors to create more productive jobs on a sustained basis to ensure effective inclusion in the growth process. The essence of achieving inclusive growth lies in reducing inequalities in the bottom layers of income distribution, and India's record of achieving inclusiveness is rather poor across the states. Policy complementarity, efficiency and macroeconomic stabilization are essentialingredients of achieving equitable and accelerating growth process in the Indian economy in the medium term.

References

Ahluwalia, M. S. (1976), Inequality, poverty and development, Journal of Development Economics, 3:307-342.

Banerjee, Abhijit and Thomas Piketty (2005): "Top Indian Incomes, 1922–2000," *The World Bank Economic*

Review, 19.1, pp 1–20.

Banerjee,Abhijit V.,and Esther Duflo (2003). "Inequality and Growth: What Can the Data Say?", *Journal of Economic Growth,* 8(3):267-299.

Banerjee,Abhijit V.,and Moll Benjamin(2010), Why Does Misallocation Persist?, *American Economic Journal, Macroeconomics,*2(1),January 2010.

Benabou, Roland (1996). "Inequality and Growth." In *NBER MacroeconomicsAnnual 1996*, ed. Ben Bernanke and Julio J. Rotemberg. Cambridge and London MITPress,pp.1173.

Chancel ,Lucas and Piketty, Thomas(2017), "Indian Income Inequality, 1922–2014: From British Raj to Billionaire Raj?," . WID.world Working Paper Series (No. 2017/11)..

Chatterjee, Biswajit (2013),Economic Growth And Income Distribution, *Presidential Address ,49th Annual*-Conference of The Indian Econometric Society (TIES),Patna Univesity, Patna,January 9-11, 2013.

Chatterjee, Biswajit (2016), Analytics of Inclusive Growth Paradigm in India, *Indian Journal of Economics, Special Centennial issue*, Vol XCVII, No 384, July2016.

Cline W.(1972), *Potential Effects of Income Distribution on Economic Growth :Latin American Cases,* Prager,New York.

Dasgupta A.K.(1985),*Epochs of Economic Theory*,Oxford University Press,London.

Datt, Gaurav and Martin Ravallion (2002): "Is India's Economic Growth Leaving the Poor Behind?" *The Journal of Economic Perspectives*,16.3, pp 89–108.

Kalecki, Michael(1971), *Selected Essays on the Dynamics of the Capitalist Economy*, Cambridge University Press, Cambridge, U.K.

Kuznets, S. (1955), Economic growth and income inequality, American Economic Review, 45:1-28Kuznets, Simon (1955): "Economic Growth and Income Inequality," *The American Economic Review*, 45.1, pp 1–28. Lewis, W.A. (1954), Economic development with unlimited supplies of labor, *Manchester School of Economics and Social Studies* 22:139-181.

Mahalanobis, P. (1963), *The Approach of Operational Research to Planning in India (Asia, Bombay).*Piketty, T. (2014). *Capital in the Twenty-First Century*. trans. Arthur Goldhammer Belknap Press

Piketty, Thomas (2015) *The Economics of Inequality,* Belknap/Harvard University Press, Cambridge, Massachusetts, 2015.

Ravallion, M., and S. Chen, 2003, "Measuring Pro-Poor Growth," *Economics Letters*, Vol. 78, pp. 93–99.

UNDP (2018), *Human Development Indices and Indicators:2018 Statistical Update,* NY, 2018. World Bank (2006). *World Development Report: Equity and Development*. Washington DC:World Bank. *World Lab (2018),* The *World Inequality Report 2018.*

Artha Beekshan, Volume 32, No. 1 & 2, June and September 2023.

Capitalism, Atma Nirvar Bharat and the Well-Being of the Masses[1]

Ambar Ghosh[2]

Abstract

In our view, an ideal human society should be based on the two principles of equality and love. However, the societies we live in are just the opposite of the ideal one. They are extremely unequal and violent. The principal objective of this lecture is to explain why this is so. It also throws light on the state India is in at the present and, in this context, explains the difference between 'Self-Reliant India' of the Nehru-Mahalanobis Programme and the 'Atma Nirvar Bharat' of the New Economic Policy adopted by the Government of India at the behest of the IMF in 1991. It also discusses the strategy that the ordinary people in the capitalist world should adopt to save themselves from being extinct.

JEL Classification Codes: A10, A11, A13

Key Words: Equality, Love, Democracy, Dependence

I pay my humble homage to the memory of Professor A.K.Dasgupta, who is one of the most brilliant economists Bengal has ever produced, through this lecture.

1. 'Self-Reliant' Then and 'Atma Nirvar' Now

Students of India's economic development in the post-Independence period come across two different terms apparently with the same meaning: 'Self Reliant India' and 'Atma Nirvar Bharat'. Do these terms actually have the same meaning? The purpose of this lecture is to answer this question. To accomplish this objective, we have to first put these two terms in their proper contexts. We start with that. The strategy of economic development that India adopted after gaining Independence is referred to as the Nehru-Mahalanobis Programme (NMP). One of the major objectives of the NMP was to achieve self-reliance. Under the NMP, a country was said to be self-reliant if it had the ability to get itself going without any kind of interaction with the rest of the world. To illustrate the concept of self-reliance with an example, if the rest of the world imposes complete

1. A.K. Dasgupta Memorial Lecture, 43rd Annual National Conference of Bangiya Arthaniti Parishad, March 18, 2023.

2. Professor, Economics Department, Jadavpur University, Kolkata, India

economic sanctions against a self-reliant country, they will fail to make any impact on the country's ability to produce or invest (investment means setting up of production facilities and building infrastructure such as roads, dams, bridges etc.) and the economic well-being of its people in any manner. The IMF forced India to give up the NMP in 1991 and adopt in its place the New Economic Policy (NEP). India is pursuing the NEP since then. The NEP wants to make India 'Atma Nirvar'. Are self-reliance of the NMP and the Atma-Nirvar of the NEP the same? In what follows, we will address this question. In order to put this question into perspective, we have to first dwell on what human societies should be like and what they actually are.

2. Human Societies: What They Should be Like

In our view, human societies should be based on the two principles of equality and love. In human societies, all individuals should be equal and all the individuals and all the countries of the world should be tied together by means of mutual love, respect and cooperation. Human societies should be completely non-violent and weapon-free. The education system and the media should inculcate these two values in people.

The objective of every society should be to give a comfortable, fully secure and completely worry-free life to every individual by providing every individual with equal and adequate access to quality food, quality clothing and quality shelter and creating a universal system of education and healthcare so that everyone gets access to these services of the highest possible quality on the scales he wants or requires completely free of cost. The goal of all our knowledge and research should be to enable our societies achieve this objective and make all the individuals' lives more and more comfortable and secure over time.

3. Human Societies We Live in: What They Actually are

The human societies we actually live in are just the opposite of the ideal societies we have just described. Our societies are extremely unequal. Just a small section of the people live in tremendous comfort and luxury, while the rest of the people languish in abysmal poverty and misery (see in this context Pickety(2014)and Stiglitz(2012)) . Our societies are also extremely violent. Almost every country is engaged in hostility with some other country or countries. There are also communal tensions and violence within many countries. The question that immediately arises is why our societies are so undesirable and uncivilized. In what follows, we will give an answer to this question.

The societies we live in belong to the capitalist world dominated by the capitalist countries. The major capitalist countries are the Western European countries and the USA. The major features of a capitalist country are the following. In a capitalist country, almost all the goods and services are produced by just a few giant firms, which are under the con-

trol of just a few giant businessmen, who are referred to as the capitalists. The capitalists own and control almost all the capital and natural resources of the country and they hire workers with wages and salaries to produce goods and services. The rest of the people survive by being workers of the capitalists. The capitalists are just a few in numbers, while more than ninety-nine percent of the people are workers. In these circumstances, the most daunting task that the capitalists in a capitalist country faces is how to protect their enormous wealth and business empire from the masses. If they fail to keep the masses under control, the masses will simply take over their wealth and business empire. The capitalists of a capitalist country become united against the masses, as they have to be for their survival, and employ several strategies to keep the masses under control. We recount them below.

3.1 Acquisition of State Power by the Capitalists

The most important strategy the capitalists employ to keep the workers under control is to usurp State Power. Let us explain how they do it. Every capitalist country has democracy where more than one party compete for State Power. Every adult citizen of a capitalist country has one vote irrespective of his economic condition. Thus, democracy grants political equality. A general election is held every four or five years. The political party that gets the majority of the votes gets to exercise State Power until the next general election is held. In these circumstances, one would expect every political party to work for the masses who wield more than ninety-nine percent of the votes. If the political parties work for the masses, the political party in power should confiscate all the wealth of the capitalists and distribute it among the masses. It should nationalize the entire business empire of the capitalists and run it in the interest of the masses so that the masses get all the incomes and benefits from them. Thus, the political equality granted by democracy should eliminate economic inequality and establish an equal society overnight. Therefore, capitalists and capitalism cannot survive democracy. However, this never happens. Democracy does not threaten the capitalists or capitalism in any manner. In fact, the political parties behave exactly in the opposite manner. They forcibly take away the land of the poor and give it away to the capitalists free of cost. This is definitely a mystery. Obviously, it is necessary to resolve this mystery in order to gain an understanding of how a capitalist society works. We try to do it below.

A political party in a capitalist country does not have any source of income of its own. However, to set up and run a political party, an enormous amount of fund is needed. A political party requires a nation-wide network of dedicated workers, access to all kinds of media etc. The larger the amount of fund at the disposal of a political party, the greater is its competitive strength. Accordingly, only the wealthiest of the people can set up and run political parties. Thus, only the capitalists have the resources to set up and run political parties and they do so just the way they form and manage their other country-wide or

world-wide enterprises and, thereby, usurp State Power. Using the State Power, they keep the masses under control and secure their enormous wealth and business empire from the masses.

In a capitalist country, therefore, just like all the basic necessities of life and justice, the State Power is also an object of purchase and sale and it gets sold-off to the highest bidder.

Democracy is, therefore, a sham and the actual rulers of a capitalist country get themselves hidden behind an elaborate facade of political parties and the government. The capitalists love this camouflage so much that they call their countries not capitalist countries but democracies. Why do the capitalists, the actual rulers of the capitalist countries, get themselves hidden? They do so in order that the anger of the people due to the misery and suffering a capitalist society perpetrates on them gets directed not towards the capitalists but towards the leaders of the political party in power, whom the people have themselves chosen as their ruler. Democracy also gives the people a way of giving vent to their anger. They do so by voting out the political party in power and bringing in another political party. The question that emerges is why capitalist societies make people's lives miserable. We will answer this question below.

3.2 Creation of Large Scale Unemployment, Low Growth, Inflation and Poverty

If the workers have substantial bargaining strength, they can raise their wages to such high levels that profit may fall to zero or may even turn negative. Under such circumstances, the capitalists will eventually lose their business empire to the workers. Hence, besides usurping State Power, the capitalists adopt different economic means to create large scale unemployment so that the workers lose all their bargaining strength. (Table 1 gives recent data of unemployment in some of the major capitalist countries. Note that the data of unemployment are generated by agencies that are fully under the control of the capitalists. Hence, they are likely to substantially underestimate the scale of unemployment.) Obviously, in the presence of large scale unemployment, the employed workers will try their level best to keep their jobs whatever be the terms set by the employers. This is because they know that if they lose their jobs, they will have to remain unemployed for a considerable length of time without any income. Moreover, they may not be able to secure another job again. In fact, unemployment among workers in every capitalist country is present all the time on such a scale that the mainstream economics, called the neoclassical economics, regards such unemployment as natural and introduced the concept of natural rate of unemployment (which is nothing but the average rate of unemployment in a capitalist country). (The pioneering work in this regard was done by Friedman (1968)). Neoclassical economics provides an explanation of the natural rate of unemployment. However, we regard the explanation to be untrue for reasons we will explain shortly. In our view, the true explanation of the large scale unemployment that exists in capitalist

countries is that the capitalists deliberately create it to ruin completely the bargaining strength of the workers. We will now discuss how the capitalists create the large scale unemployment. The capitalists all the time make enormous investments in R&D to innovate technologies that continuously incorporate more and more automation in production so that labour requirement of production keeps on falling. We cite evidences in support of our claim taking the example of India. The production sector in India is usually divided into two sub-sectors: the organized sector and the unorganized sector. The organized sector in India comprises mainly the government enterprises and private joint stock companies or corporations and large private firms other than the corporations. Small non-agricultural producers and agricultural producers constitute the unorganized sector. We find from Table 2 that the share of the organized sector in India's aggregate output, which is referred to as NDP (net domestic product) and also as GDP (gross domestic product) in economics, increased steadily from 36.8 percent in 1993-94 to 43.3 percent in 2003-04 and, then, further to 45.1 percent in 2010-11. Note that the GDP in any given year is the average of the outputs of the two sectors in the same given year and the growth rate of GDP in any given year is the average of the growth rates of outputs of the two sectors in the same given year. This means that, if the growth rates of outputs of the two sectors are not equal, then one will be higher and the other will be less than the growth rate of GDP. It can be shown that the fraction of GDP contributed by the sector growing at a higher rate than GDP will increase over time. We find from Table 2 that the fraction (or percentage) of GDP contributed by the organized sector increased steadily over time from 36.8 percent to 45.1 percent during 1993-94 – 2010-11. This means that during the given period the average annual growth rate of output of the organized sector was higher than that of GDP. From the data of annual growth rates of GDP given in Table 3, one can easily compute that the average annual growth rate of GDP during the period 1994-95 – 2007-08 was 7.8 percent and it dropped to 7.2 percent during 2008-09 – 2011-12. This means that during the former period the average annual growth rate of output of the organized sector was more than 7.8 percent, while it was more than 7.2 percent during the latter period. However, one may perhaps safely assume that during the latter period the average annual growth rate of the output of the organized sector was less than what it was during the former period. Comparing the data of Table 2 and those of Table 4, we find that even though the organized sector in 2004-05 produced close to half of India's GDP, it employed only 6 percent of the workforce, which is defined as the total number of workers employed in production. This is a stark indicator of how little labour the organized sector uses for its production. Table 3 reveals a dismal employment scenario. It shows that, while the output of the organized sector on the average grew at a rate higher than 7.8 percent every year during 1994-95 – 2007-08, employment in the organized sector remained stagnant. However, for some inexplicable reasons, employment in the organized sector increased slightly from 27.53 million in 2007-08 to 29.65 million in 2011-12. The reason

is inexplicable because during the last four years 2008-09 – 2011-12, the average annual growth rate of the output of the organized sector, as we have pointed out above, was in all likelihood less than that in the preceding 13 year period. Despite that, employment in the organized sector increased during the last four years, while it was completely stagnant during the preceding thirteen year period. This makes one suspect the quality of employment data for the period 2008-09 – 2011-12. Even if we ignore our suspicion regarding deliberate manipulation of employment data, the increase in employment may be due to marked deterioration in the quality of employment with the government diluting drastically the Labour Laws the organized sector was subject to under the NMP and allowing the organized sector to employ short period contract workers at extremely low wages and benefits. Despite the points made above, we find that from 1994-95 to 2011-12, employment in the organized sector increased by only 7.7 percent. This means that from 1994-95 to 2011-12 employment in the organized sector grew annually on the average at the rate of 0.1 percent. In contrast, during the period 1994-5 – 2011-12, average annual growth rate of the output of the organized sector was more than 7.5 percent. Thus, during the given 17 year period, high annual rate of growth of the output of the organized sector was accompanied by labour saving technological and managerial changes taking place at a rapid rate so that employment in the organized sector remained practically stagnant. We also find from Table 5 that during the period 1999-00 – 2004-05, workforce grew annually on the average at the rate of 2.89 percent. It is reasonable to assume that this growth rate has remained more or less the same since then. Given the stagnant employment in the organized sector, it means that the percentage of employed workers working in the organized sector, which was only 6 percent in 2004-05, is falling steadily and rapidly over time. From the above it is clear that the government and the corporations are deliberately keeping employment stagnant so that workers working under them lose all their bargaining strength. This is reflected in the steady and secular decline in the share of wages in the output of the organized sector. This means that the fraction of the aggregate output of the organized sector that the organized sector's workers could purchase with their wages fell steadily and rapidly during the period under consideration. We find from Table 6 that the share of wages in the output of the organized manufacturing sector (output of a sector is referred to as the NVA (net value added) of that sector in economics) dropped from around 25 percent in 1990-91 to about 13 percent in 2012-13. This means that the workers in the organized manufacturing sector could purchase with their wage income about 25 percent of the total output of the organized sector in 1990-91, while in 2012-13, they could purchase with their wages only about 13 percent of the output of the organized manufacturing sector. This reflects the steadily dwindling bargaining strength of the workers of the organized manufacturing sector.

Besides this, there are strong reasons to believe that, since the capitalists produce almost all the goods and services, they have in their complete control the rate of growth of aggregate output and they keep this rate of growth at such a low level that the rate of growth of jobs falls far short of the rate of growth of the labour force. Table 7 gives the recent data of the growth rate of aggregate production (referred to as real GDP or GDP at constant prices) of some of the major capitalist countries in the world. If we compare the growth rates of the capitalist countries to those of China, a socialist state based on Marxist-Leninist principles, we will realize how deplorably low the growth rates of the capitalist countries are. In fact, if we compare the growth rates of the capitalist countries in different years, we find that occasionally the growth rates become relatively high. These periods of relatively high growth rates are referred to as periods of boom. The rest of the periods are called periods of recession. In the case of the US, for example, the periods from 1983 to 1989 and again from 1992 - 2000 were periods of boom. The rest of the periods covered by the data of Table 7 were periods of recession. The US economy entered into a recession in 2001 and this recession is continuing even today. Actually, the capitalists deliberately create the periods of boom to rob the workers' of their savings (for a detailed discussion of this issue and evidential support, one may go through Chapters 5 and 7 of Ghosh and Ghosh(2019[b])).

The argument that the capitalists keep the growth rate of aggregate output low to create large scale unemployment among the workers was first enunciated by Keynes(1936), arguably the most famous economist in the mainstream economics. He argued that in every given year or quarter, there usually exists in a capitalist country substantial unemployment among workers due to low level of investment demand, which leads to low rate of growth of real GDP. Note that investment demand in capitalist countries comes from the capitalists. However, in Keynes' theory, an individual investor is small, the number of investors is very large and the investors take their investment decisions independently of one another. As a result, no individual investor has any control over aggregate investment. In reality, the capitalists make all the investment in capitalist countries; they are just a few in numbers and they are united, since, otherwise, they will not be able to protect their enormous wealth and business empire from the masses and they deliberately keep the growth rate of real GDP low so that there emerges substantial unemployment among workers in every period.

In both the above mentioned ways, the capitalists create large scale unemployment ruining all the bargaining strength of the workers and push the wage rate down to the lowest possible level.

The workers not only need jobs for their survival, they also need to save in order to tide over periods of old age, unemployment and illness. Even though some of the workers borrow to buy houses and consumer durables, in the net workers are savers and the

capitalists secure the savings of the workers through the financial institutions they own for financing their production and investment. In all the capitalist countries, the central bank follows the following kind of monetary policy. It keeps the interest rate at a target level. When the growth rate of aggregate production is low, the central banks push down the interest rates to the lowest possible levels to bring about a reversal in the growth rate. Since the capitalists keep the growth rate of aggregate production low on the average all the time, the central banks also on the average keep the interest rates as close to zero as possible. Thus, both labour and savings of the workers become available to the capitalists at the lowest possible prices. (For more details on this point and empirical support, one may go through Ghosh and Ghosh (2019[a]), Chapter 5)

The capitalists do not stop at this. They continuously raise prices (see Table 8). The capitalists produce all the goods and services. They are a united lot, otherwise they cannot defend themselves against the masses. They set the prices of their goods and services and they continuously raise them so that the real value (or purchasing power) of the wage income, interest income and the savings of the workers fall continuously reducing their command over the produced goods and services. (Note that, to keep the real value or purchasing power of the workers' money income and wealth unaffected in the face of inflation, the money wage rate, the nominal interest rate and the money value of the workers' savings held in the form of loans should increase in the same proportion as the price. Otherwise, there will take place the most unjust and cruel redistribution of income from the workers to the capitalists. The governments and the central banks in capitalist countries do not pay any heed to this.) The mainstream economics says that it is not profitable for the capitalists to raise prices as it lowers workers' purchasing power and, thereby, their demand for produced goods and services adversely affecting capitalists' sales and, thereby, their profit. This argument is, however, untenable. The capitalists have in their complete control not only aggregate production of but also aggregate demand for produced goods and services. Even though there may be a limit to their consumption demand, there is no limit to their investment in R&D. Investment in R&D does not add to productive capacity but yields blueprints for technologies that incorporate more automation in production, produce more powerful weapons (both physical and biological) of control and destruction, new luxury goods and better varieties of existing luxury goods. There is no limit to such investments. They raise this kind of investment to such a high level that in every period the full capacity output gets produced. The capitalists continuously raise prices so that workers' demand for produced goods goes down making it possible for the capitalists to use more produced goods and services for investment in R&D. This kind of investments enable the capitalists to create more unemployment, raise their standard of living and control the masses more effectively. (Mainstream economics, that is, neoclassical economics regards inflation as a phenomenon that is not caused by

any individual or group of individuals but by the impersonal market forces of demand and supply. More precisely, it regards inflation as a monetary phenomenon that occurs when the rate of growth of money supply is so high that it exceeds the rate that is warranted by the rate of growth of real GDP. Moreover, it is of the view that inflation on the average does not affect the well-being of either the workers or the capitalists in any manner. We will explain shortly why this explanation of inflation is not true.)

It is clear from the above that most of the people in capitalist countries live in acute poverty. This is corroborated by the following piece of evidence from the US economy, which is one of the richest capitalist countries in the world. United States Department of Agriculture (2018) estimated that 11.8 percent of the US households were food insecure (i.e., they did not get enough food to eat) in 2017 and 4.5 percent of US households had very low food security in 2017. It also reported that over a period of five years from 2013 to 2017, 51.5 percent of the US households were food insecure for some period in at least one year. Not getting enough food to eat is an index of extreme poverty. People who do not get adequate food to eat all the time can only have miserable access to the other basic necessities of life such as clothing and shelter let alone education and healthcare. Clearly, if more than half of the people of a country do not get enough food to eat for some period, one can reasonably infer that most of the people of such a country live under considerable hardship all the time.(For evidential support of this claim, go through Chapter 7 of Ghosh and Ghosh (2019[b]).)

3.3 Religion and Economics: Instruments of Control and Exploitation

Besides the strategies mentioned above, the capitalists also use religion and economics as instruments of control. We discuss here how the capitalists use religion and economics as instruments of control and exploitation. We start with religion.

Religion

Obviously,large scale unemployment, low wages and interest rates and the continuous increase in prices make the masses restive. To control them, the capitalists use not only State Power but also religion. Religion attributes people's misery, suffering and poverty to their own misdeeds in this incarnation or earlier incarnations and exhorts people to be law-abiding, peaceful, obedient, truthful and devoted to God for their emancipation after death. Religion, therefore, diverts people's attention from the real cause of their poverty. Hence, the capitalists, through the State Power, political parties, media and other means, promote religion. They also create disharmony, tensions and riots among people belonging to different religions and, thereby, destroy workers' unity, make them weak, and obfuscates the real reason of their suffering.

We will now focus on the role of economics.

Economics

Economics is another instrument of exploitation. Economists in capitalist countries are workers. They have to work for the capitalists for their survival. Accordingly, they develop the kind of economics that serves the interest of the capitalists the best. The mainstream economics or neoclassical economics that these economists have developed recommend the policy of the free market. It states that if the government follows the policy of the free market, that is, if the government allows the businessmen take their decisions regarding what to produce, how much to produce, what price to set, what to buy, what to sell etc. freely, a capitalist economy will achieve on the average in every period an optimum or efficient state. It will achieve a state where all the labour available for work and the whole of the productive capacities of the production organizations existing in a given period will be fully utilized so that the maximum possible level of goods and services will be produced, all the different goods and services will be produced in optimum quantities and the produced goods and services will be optimally distributed among the people. Neoclassical economics derives this result on the basis of a set of assumptions. One of the most crucial of these assumptions is that every producer is small, number of producers of any good is very large and the producers take their production decisions independently of one another. As a result, no individual producer has any influence over the aggregate output of a good, nor does he have any influence over the price of a good. Both the aggregate output of a good and the price of a good are determined by impersonal market forces over which no individual or a group of individuals has any control. This assumption is completely at variance with the reality, where just a few capitalists have both production and prices under their complete control. On the basis of this recommendation, the governments all across the capitalist world follow the free market policy and, thereby, gives the capitalists a free hand in running and managing the capitalist countries. Thus, economics creates a theoretical ground on the basis of which the government gives a free hand to the capitalists so that they can run their exploitative machinery unhindered.

Even though neoclassical economics recommends the free market policy, it makes certain exceptions. For example, it recommends the policy of lowering the nominal interest rate to the lowest possible level to reverse a situation of low growth.

4. India: The Present State

What kind of a country is India at the present? The most important feature of India at the present is that it is completely dependent on the Western European countries and the US for knowledge and technology. Let us illustrate this claim with an example. Think of the case of teaching economics in India. All the text books we refer to are imported from the Western European countries and the US. All the journals we refer to are imported from the Western European countries and the US. All the computers and also all the software

we use are bought from the companies of the US or West European origin. This is true of not only economics but also all other subjects. Thus, to set up an educational institute in India, all the knowledge inputs and all the hi-tech inputs have to be imported. This is applicable not only to the educational institutes but also to all the modern production facilities in India. Thus, to set up a bank in India, for example, all the computers, software and high-tech machines have to be imported from the US or Western European countries. India, therefore, has to import on a large scale to sustain its production and investment. However, to import from the Western Europe and the US, India requires currencies of these countries. To earn these currencies, India has to sell its products to these countries. Since India produces its goods and services with imported knowledge and technology, which are never state-of the-art, India's ability to compete in the world market is virtually nil. Therefore, India cannot get itself going. How does it survive then? The only plausible hypothesis seems to be that the Western capitalists, that is, the capitalists of the US and Western Europe, who have in their control almost all the enterprises and the governments of these countries get India going by placing export orders with it and by buying India's bonds and stocks on a very large scale (see in this context Chapter 8 of Ghosh and Ghosh (2016) for evidential support) providing India with the requisite amount of foreign currency. Accordingly, India has to abide by the dictates of the Western capitalists at every step. Therefore, India is independent only on paper. It is virtually a colony of the Western capitalists. Since Indian capitalists do not have any independent base of knowledge and technology, they have no competitive strength vis-à-vis the Western capitalists and cannot survive as capitalists on their own. They are, therefore, one may safely presume, merely the representatives of the Western capitalists managing their businesses in India. Thus, the political parties in India are also owned and run by the Western capitalists. Hence, it is the Western capitalists who rule India and run all the large businesses in India. But, at the present, they do so not directly as in the colonial days but indirectly through their Indian representatives. In the following sections, we will discuss how India has come to such a pass after Independence.

4.1 India's Dependence on Foreign Capital and External Demand: Evidences

Here, we will establish our claim regarding India's helpless dependence on foreign capital and foreign demand for our goods and services with evidences. The following discussion is based on a much more detailed study of the macroeconomic performance of the Indian Economy carried out in Ghosh and Ghosh(2016) in Chapters 8 and 9. We will focus on India's growth performance since 2003-04 to bring out India's helpless dependence on inflows of foreign capital and external demand for its produced goods and services for sustaining its production and investment. The growth rate of GDP at constant 2004-05 prices rose to 8.1 per cent in 2003-04 from 4 per cent in 2002-03 and this high growth rate was sustained till 2010-11 except for a dip to 6.7 per cent in 2008-09. In fact,

during 2005-06 – 2007-08, the growth rate equaled or exceeded 9.5 per cent (see Table 9). This kind of superlative growth performance is unprecedented in India's history. However, the growth rate slackened in 2011-12 to 6.5 percent and further to 4.5 percent and 4.7 percent, respectively, in 2012-13 and 2013-14. We consider it extremely important to know why or how India's growth rate rose to unprecedented heights since 2003-04 and why the growth rate ebbed in 2008-09 and again during 2011-12 – 2013-14. A thorough understanding of these phenomena is essential for understanding how helplessly India depends upon foreign capital and external demand.

To explain India's growth performance chalked out above, we will use a model set in the Keynes-Kalecki tradition. In the model (which is presented in the appendix), aggregate demand determines GDP. We have to first identify which of the four components of aggregate demand, namely, consumption, investment, public consumption and net export, was the main driver of growth in the period under consideration in India. To identify the component of aggregate demand that was principally responsible for the fluctuations in the growth rates delineated above, it may be helpful to focus on the jump in the growth rate in 2003-04 from that in 2002-03. Net export is not the reason for the jump. There did not take place any noticeable increase in the growth rate of exports in 2003-04. Growth rate of export from 2002-03 to 2003-04 was 21.09 per cent. It was 20.29 per cent from 2001-02 to 2002-03 and 21.01 per cent from 1999-00 to 2000-01 (calculated from data on export from RBI(2013[a])).

Except during 2008-09 – 2009-10, the fiscal policy has been either neutral (or at least not avowedly or significantly expansionary) or contractionary. Keeping fiscal deficit in a tight leash has been an integral part of the New Economic Policy being pursued by the GoI since July 1991. In fact, we find from Table 9 that fiscal deficit as a percentage of GDP had been significantly lower during the high growth phase than that in the earlier period. Hence, we cannot attribute the remarkable jump in the growth rate in 2003-04 to fiscal stimulus. Aggregate consumption demand, we believe, is driven principally by the current disposable income rather than the other way round. It is also an increasing function of wealth. However, there is no evidence that there took place any significant jump in households' wealth in or immediately before 2003-04. Unlike investment, consumption is normally quite stable except in times of wide-spread economic crisis such as the Great Recession that happened in the US since 2007 during which asset prices collapsed suddenly bringing about a sharp increase in households' indebtedness and bankruptcy and, thereby, to a substantial decline in households' wealth or net worth in the US. Given the state of the Indian economy, there is no reason to believe that there took place any sudden significant increase in households' wealth during or prior to 2003-04 that can in any way account for the doubling of the growth rate in 2003-04 from that in 2002-03.

From the data given in the last two columns in Table 9, we think that the growth performance of the Indian economy during the period under consideration was largely investment driven. The question that automatically arises is what happened in and around 2003-04 to send investors' confidence and, thereby, investment soaring. To this issue we now turn. From the relevant data of the Indian economy we find that the only remarkable thing that happened in 2003-04 was a very large increase in inflows of foreign investment and these inflows remained high and grew at a high rate all through the high growth phase of the Indian economy – see Table 9.

The question is how these large inflows of foreign investment gave a boost to investor confidence. We get a clue regarding this from the data of the nominal exchange rates given in Table 10. We find that in 2008-09, when growth rate dipped, the exchange rate rose steadily from Rs.40.0224 in April 2008 to Rs.57.2887 in March 2009. Similarly, during recession years 2011-12, 2012-13 and 2013-14 exchange rate increased steeply from Rs.45.4174 in July 2011 to 51.6769 in December 2011 and to Rs.51.3992 in January 2012 and again from Rs.51.8029 in April 2012 to Rs.56.0302 and Rs.55.4948 in June and July 2012 respectively. Again, the exchange rate rose from Rs. 54.4971 in April 2013 to Rs.64.3885 in September 2013 and, then, slid down to Rs.62.3136 in February 2014. Thus it seems that the direction of change in the exchange rate is a crucial determinant of the sentiments of domestic investors who invest in domestic physical capital. (It should be pointed out that a deterioration in investors' sentiments that brings about an exogenous decline in investment in domestic physical capital will lower GDP, demand-driven as it is in the short-run, and, thereby, will reduce import and the exchange rate. Thus, there is unlikely to be any reverse causality between deterioration of sentiments of the investors referred to here and a rise in the exchange rate). An increase in the exchange rate indicates BOP deficit and this seems to adversely affect investor morale. One simple way of explaining this is the following. India is heavily dependent on imports of capital goods. As India is fully dependent on foreign technology, investment in India is highly import intensive. Following a ceteris paribus increase in the exchange rate, imported capital goods become costlier dampening, given expectations, profitability of investment. This is a likely explanation of why investor sentiments deteriorate with a rise in the exchange rate. Of course, the RBI intervenes regularly in the foreign exchange market to keep the exchange rate stable. But, since its foreign currency reserves are far too inadequate, it has extremely limited means to tackle adverse BOP situations. This should be clear from Table 10, where we, as we have already pointed out, find that in 2008-09 and also in 2011-12, 2012-13 and 2013-14, exchange rate soared in the face of BOP difficulties. Thus, it is reasonable to postulate that India has a flexible exchange rate regime.

The RBI regulates interest rates too through theliquidity adjustment facility (LAF), monetary stabilisation scheme (MSS) and open market operations (OMO) (see Ghosh

and Ghosh (2021) chapter 4 for details). Given the RBI's interest rate stance, the effect of influx of foreign capital may not operate through the interest rate route much. It affects investor confidence through its impact on the exchange rate. This likely link between the exchange rate and investment in India, in our view, played a vital role in driving up investment and thereby pushing up growth rate following an increase in the influx of foreign investment since 2003-04. (We have proved this theoretically in the appendix.) The large and growing foreign investment during 2003-04 – 2007-08 led to high rate of growth of domestic investment in physical capital inducing a high rate of growth of real GDP (see Table 9). In 2008-09, just the opposite happened. Foreign investment declined considerably from $43,325 million to $8311million– see Table 9. As a result, the exchange rate soared (see Table 10) inducing a fall in the rate of growth of real GDP from 9.6 percent to 6.7 percent. Again, foreign investment increased from $8311million in 2008-09 to $50361 million in 2009-10 raising the rate of growth of real GDP to 8.4 percent.

India entered into a recession again since the second quarter of 2011-12 – see Table 8.1. The reason perhaps was different from that in 2008-09. The recession, according to RBI (2012), was on account of a "slackening of export growth owing to a slowdown in external demand". The ensuing BOP difficulties caused the exchange rate to increase (see Table 10) inducing a fall in the growth rate of real GDP from 8.4 percent in 2010-11 to 6.5 percent in 2011-12.

In the Union Budget for the year 2012-13 placed in the parliament at the end of February 2012, GoI introduced 'General Anti Avoidance Rule'(GAAR). At the same time it brought about a 'reptrospective amendment to the Income Tax Act pertaining to indirect transfer of Indian assets'. Both these measures implied an increase in the tax rate applicable to foreign investors' income from their investments in India. Immediately, the credit rating agencies swung into action. S&P downgraded India's sovereign rating in April 2012 and threatened to downgrade it further to junk status. Other credit rating agencies such as Moody's and Fitch also followed suit. Following this rating downgrade, there took place a drastic decline in the inflow of foreign capital in the first quarter of 2012-13 – see Table 11. In a press statement released on 15 May 2012 (GoI, Ministry of Finance, Press Information Bureau), GoI stated: "However, all the SCRAs (Sovereign Credit Rating Agencies such as Moody's Investor Services, Standard & Poor's (S&P), Fitch Ratings etc.) have not favourably commented on India's fiscal deficit and debt. In their April 2012 report, S&P had revised the outlook on the long term rating on India from stable to negative. In its report, S&P also stated that the outlook has been revised "to reflect at least a one-in-three likelihood of a downgrade if the external position continues to deteriorate, growth prospects diminish, or progress on fiscal reforms remains slow."

With the rating downgrade, there took place a large decline in capital inflow and, consequently, a shooting up of the exchange rate (from Rs.49 in February, 2012 to Rs.56 in

June and Rs.55 in July, 2012 – see Table 10). Government of India grew terribly nervous and started adopting since 12 September 2012 a slew of measures to appease the foreign investors and the credit rating agencies. On September 12, 2012, GoI allowed, for example, FDI in retail and promised more reforms on this line. It also brought about a steep increase in the administered prices of diesel and cooking gas. The measures were obviously so detrimental to the interest of the poor that it evoked a nation-wide protest. The protest was so true and forceful that the Prime Minister of India had to address the nation to explain why such harsh measures were necessary to reverse the economic slowdown. It may be instructive to quote a few portions of the speech the PM delivered on 21 September 2012. "We are at a point where we can reverse the slowdown in our growth. We need a revival in investor confidence domestically and globally. The decisions we have taken recently are necessary for this purpose. Let me begin with the rise in diesel prices and the cap on LPG cylinders.....If we had not acted, it would have meant a higher fiscal deficit. If unchecked this would lead to .....a loss of confidence in our country. The last time we faced this problem was in 1991. Nobody was willing to lend us even small amounts of money then.....I know what happened in 1991 and I would be failing in my duty as Prime Minister of this great country if I did not take strong preventive action."

The above discussion shows that India is in a precarious state. A large reduction in the inflow of foreign capital will lead to severe recession and substantial depreciation of Indian rupee engendering a price spiral, as imported intermediate inputs are essential ingredients of production. Thus, a large sudden decline in foreign capital inflow will have a devastating impact on our economy. Our discussion suggests that the unprecedented high growth phase of 8-9 per cent evinced during 2003-04 - 2010-11 (excepting the year 2008-09) was principally due to large inflows of foreign capital. Unfortunately, India has no control over these capital flows. On account of India's very critical and helpless dependence on foreign capital inflows for sustaining its growth and stability, it has lost its policy-making autonomy. Its policies are dictated by the credit rating agencies which assess and monitor economic activities and performances of different countries all across the world on behalf of the foreign investors. We find the echo of this helplessness in the PM's speech delivered on September 21, 2012, portions of which were quoted above. From the speech it is clear that the policies adopted since September 2012 are designed at the behest of the credit rating agencies. In 1991, the IMF thrust upon India its policy packages. Now, at every step policies have to be formulated to appease the foreign investors who dictate terms through the credit rating agencies. In other words, India has lost its independence in policy making. Globalisation in the case of India has allowed it to grow substantially beyond its means but at the cost of its economic independence.

Besides the measures noted above, the Government of India (GoI) since September 2012 liberalised FDI norms for the insurance and pension sector as well, chalked out a

road map for fiscal consolidation and increased FII limits in the corporate and government debt markets (RBI (2013)). The major plank of fiscal consolidation consisted in not only a substantial increase in the administered price of diesel but also a declaration of the government that it would continuously and gradually go on raising the diesel price until the subsidy is completely removed. GoI also postponed implementation of the General Anti Avoidance Rule and retrospective amendment of income tax laws. A hike in the administered price of diesel which reduces the rate of subsidy gets reflected in an increase in the rate of net indirect taxes. Thus, since September 2012, the net indirect tax rate was substantially raised. Therefore, the macroeconomic instability that was created since the beginning of 2011-12 was sought to be tackled through an increase in the net indirect tax rate and removal of the restrictions on foreign investment. Even though foreign investment moved back to its high levels since the second quarter of 2012-13 (see Table 11), the BOP deficit continued (see Table 12), rupee continued to depreciate (see Tables 12) and there was no let up in recession – see Tables 9 and 11. . Why did this happen? In our view, the increase in the net indirect tax rate depressed demand, created large BOP deficit and sent the exchange rate soaring. Let us explain. Since India does not have any independent base of knowledge and technology, close substitutes of all the goods and services India produces are available everywhere else. Hence, India's net export is likely to be highly price elastic. The hike in the net indirect tax rate and the consequent increase in the domestic price level, therefore, drastically reduced net export and created large BOP deficit despite the increase in foreign investment. The consequent increase in the exchange rate reduced the growth rate of domestic investment in physical capital and that of real GDP. A theoretical proof of this result is given in the appendix.

The recession continued in 2013-14 – see Table 9. This was due to a large decline in net capital inflow – see Table 9 – on the back of the rumour that the US was going to reverse its quantitative easing programme or expansionary monetary policy bringing about an increase in the interest rates in the US.

The above discussion makes it amply clear how crucially dependent India is on external demand and inflow of foreign capital.

The data of growth rates of real GDP from 2014-15 onward have been computed using a new method. The base year has also been changed from 2004-05 to 2011-12. Accordingly, growth rates of 2014-15 onward are not comparable to the ones preceding 2014-15. However, there is no reason to believe that India's helpless dependence on foreign capital and external demand slackened in any manner since 2014-15. From the data given in Table 13 it is clear that the new methodology and the base year have substantially inflated the figures of growth rates of real GDP – compare the growth rates of 2012-13 and 2013-14 of the old series and the new series. Clearly, if the growth rates of the high growth phase (2003-04 – 2010-11) were computed using the new method and the base year, the

average annual growth rate of the high growth phase would have been more than 10 percent instead of 8.5 percent. From this point of view, the Indian economy remained in recession since 2014-15. Besides the foreign investment and external demand, the factors that kept the growth rates depressed were a series of shocks such as the imposition of Demonetisation (2016-17), incorporation of the Goods and Services Tax (GST) (2017-18) and, finally, the outbreak of COVID-19 (2019-2020). To see how Demonitisation, GST and COVID-19 generate recession, go through Ghosh(2017), Ghosh and Ghosh (2021[a]) and Ahamed and Ghosh (2021), respectively.

4.2 Our Interpretation of the Trade Cycle Described Above

The trade cycle described above brings out clearly India's helpless dependence on foreign capital and external demand. Since the Western capitalists in our view control all the firms in the capitalist world, they are in complete command of all the foreign investments made in India and the external demand for the Indian products. They, therefore, created the trade cycle. The question is why. We will try to give an answer to this question here. We have already argued that the most plausible hypothesis that explains the existence and survival of the Indian capitalists is that they are representatives of the Western capitalists and running the business of the Western capitalists in India on their behalf. Therefore, the most reasonable explanation of the boom in India since 2003-04 is that the Western capitalists instructed the Indian capitalists to step up the growth rate of production and investment since 2003-04. To enable the Indian capitalists to do so, the global capitalists started investing heavily in India's bond and stock market so that the supply of foreign exchange to the Indian capitalists increases substantially. Using this large inflow of capital and borrowing very heavily from the Indian banks, the Indian capitalists sustained high rates of growth of real investment and, thereby, that of real GDP creating the boom period. However, the inflow of capital tapered off, the stock market crashed and India entered into a recession since 2011-12 and this recession is continuing even today (see Table 13 and Ghosh and Ghosh (2016), Chapter 8). Why did the Western capitalists turn this boom into a recession? The events narrated below, in our view, throws light on this issue. With the onset of the recession, the ordeal of the public sector banks (PSBs) in India began. The corporate sector, fully under the control of the capitalists, started defaulting on their loans on a very large scale giving the excuse of recession. As a result, the PSBs' stock of non-performing loans (defined as loans that do not yield any income) as a fraction of their total amount of loans given started increasing at an alarming rate driving them towards bankruptcy (see Table 14). This problem of non-performing loans remained confined principally to the PSBs and left the domestic private banks unaffected (see Table 14). At the same time, bank frauds, which also were confined principally to the PSBs, started increasing at a high rate. Apart from the dramatic episodes of Vijay Mallya and Nirav Modi who defrauded the public sector banks (PSBs) of Rs.9000 crore and Rs.11,500 crore and

left India in 2016 and 2018, respectively, evidences that have come up recently suggest that bank frauds are quite widespread in the banking sector in India and these frauds are concentrated principally in PSBs. The Annual Report 2018-19 of RBI (2018-19, pp.122-123) states that the number of cases of frauds reported by the banks increased by 15 percent in 2018-19 on a year-on-year basis, with the amount involved rising by 73 percent from Rs.382608.7 million to Rs.645094.3 million. More than 90 percent of the defrauded amount is related to the PSBs. According to the RBI's Financial Stability Report 2018 (RBI (2018)), large borrowers accounted for 58.8 percent of gross loans and 85.6 percent of gross non-performing loans of banks. Thus, it seems reasonable to assume that bank frauds were principally perpetrated by the corporate sector. The evidences cited above give us a plausible explanation as to why the capitalists created the above mentioned boom and recession in India. We delineate it below.

In the period of boom, the Indian capitalists, at the behest of their Western counterparts, borrowed from the PSBs on a very large scale and it was quite possible for them to steal a large part of it. Let us explain this with an example. Suppose a capitalist borrows Rs.40,000 crore from a PSB to build a company and offers the company to be built with the loan as the collateral to the PSB. The capitalist uses only half of it to build the company and steals the rest. However, on paper, he shows the value of the assets of the company to be equal to Rs.40,000 crore. Given the nexus between the government and the capitalists, the PSB turns a blind eye to it. The capitalist runs it for a few years and, when the recession sets in, declares his company to be bankrupt and stops servicing the debt. The PSB takes over the company and the obligation of the capitalist ends there. The PSB sells the company but by selling it the PSB can recover only a small part of its dues. The PSB again turns a blind eye to it and writes off the rest of the loan. Most of the time the PSB cannot even sell the bankrupt company because other companies of the capitalist move the court saying that the bankrupt company owes them money and the PSB has to pay them their dues first before selling the company (seeChandrasekhar and Ghosh(2018)). These litigations usually continue indefinitely and no party shows any interest in resolving the problem. The PSB in such a case writes off the whole of the loan. This scenario is highly plausible, given the alarming rate of increase in the incidence of bank frauds in recent years in India. Since the capitalists own the private banks, they did not default on the loans taken from the private banks. Another reason for defrauding the PSBs may be the following. The capitalists want to make them sick and show them as inefficient relative to the private banks. This gives the government an excuse to sell off the PSBs at throw away prices to the capitalists. The capitalists want to gobble up the government owned financial institutions, which at the present dominate by far India's financial sector. Thus, the capitalists created the trade cycle described above to rob the workers' savings parked with the PSBs and provide the government with a reason for selling off the PSBs at throw away prices to the capitalists.

In fact, trade cycles all across the capitalist world are created by the capitalists to make gains at the expense of the workers. For a detailed discussion of this view, go through Chapters 5 and 7 of Ghosh and Ghosh (2019[b])

5. India and Self-Reliance under the Nehru-Mahalanobis Programme

In order to comprehend India's 'dependent' status, we have to focus on the Nehru-Mahalanobis programme of economic development (NMP), which is the development strategy that India followed since gaining Independence until July 1991. The NMP was modeled after the Soviet model of planned economic development and sought to develop India through a series of Five Year Plans. The NMP had two principal objectives: achieving self-reliance and providing every citizen of the country with adequate amounts of quality food, clothing and shelter and creating a universal health care and education system that would make available for every citizen of the country quality healthcare and education on the scale one wants or requires virtually free of cost. Self-Reliance under the NMP meant achieving the capability of producing all the goods and services India requires so that India need not depend on any kind of imports or foreign assistance for meeting its requirements of goods and services. To achieve the objective of self-reliance, the following policies were adopted. First, the planners undertook a massive programme of industrialization. It emphasized on the development of the heavy and basic industries. Heavy industries refer to the machine-making-machine industries, that is, the industries that produce machines for producing all other goods and services. Basic industries on the other hand are those industries that produce goods and services, which enter into the production of all other goods and services directly and indirectly. Examples of these goods are iron and steel, power, fuel, transport etc. The basic and heavy industries were referred to as the commanding height of the economy. The government decided to develop these industries itself. It did not allow any private participation in these industries. Clearly, if a country succeeds in developing heavy and basic industries, it takes a long stride towards achieving self-reliance. In order to develop agriculture and achieve self-sufficiency in food production, the government decided to invest on a large scale in agricultural R&D, irrigation, flood control and drainage. To protect the farmers and the ordinary Indians, a food procurement and distribution operation was undertaken. Under this programme, the government set procurement prices for all the major food grains. The government set these procurement prices at such high levels that the farmers received a remunerative return on their production. The government announced these procurement prices well ahead of the sowing of crop and the farmers could sell to the government at these procurement prices as much as the farmers wanted. Thus, the procurement policy of the government completely removed price uncertainty for the farmers. The government also supplied the farmers with the necessary inputs and credit on an adequate scale at highly subsidized prices and interest rates so that the farmers could fully utilize all their land and capital.

In order to provide the ordinary Indians with adequate access to food and clothing, the government set up a public distribution system (PDS). Through the PDS, the government distributed food and clothing by means of per capita quantitative quota among the people at very low prices. In order to keep the market prices of essential food items low, the government passed the Essential Commodities Act, which empowered the government to have in its full control the total supplies of these food items so that it could keep their prices low through import and elimination of hoarding and export. Prices of all essential non-agricultural goods and services were administered by the government in order to protect the people from inflation.

As productive resources were extremely scarce, successful implementation of the NMP required full utilization of the scarce productive resources for the production of only those goods and services that were necessary for achieving the two plan objectives specified above. In order to ensure this, the government through a system of licensing imposed stringent restrictions on production, investment, export, import and cross-border capital flows. The NMP sought to develop India through a series of Five Year Plans. Each of these Five Year Plans set production and investment targets for all the lines of production that were necessary for achieving the two objectives of the NMP. Thus, under the NMP, the planners decided which commodities to produce and in what quantities.

Since heavy and basic industries were highly capital and skill-intensive, many areas such as textiles, trade, agriculture etc. were reserved for the small producers only to generate employment. Corporate entities were not allowed to enter these sectors. Moreover, to promote the growth of the small enterprises, they were provided with credit and inputs at highly subsidized interest rates and prices on an adequate scale. The NMP also nationalized the whole of the financial sector and adopted the directed credit programme. Under the directed credit programme, the government administered all the interest rates and dictated to the banks and other financial institutions how much to lend and to whom. The interest rates and the credit disbursal pattern were set in such a manner that the plan targets of production and investment were fulfilled. The farmers and the small producers in the non-agricultural areas were regarded as the priority sector and they were provided with adequate amounts of loans at very low interest rates so that they could fully utilize all their land and capital and produce the maximum possible level of output. Under the NMP, the banks and other financial institutions were social organizations. They were fully protected by the government. Their objective was not to maximize profit but to mobilize as much saving as possible by providing the savers with fully safe and remunerative avenues of saving and utilize these savings to extend loans at interest rates and in ways as dictated by the planners so that the plan targets of production and investment were fulfilled. If the farmers and the small producers on account of adverse circumstances were unable to pay back their loans with interest, the government used to waive their loans.

Thus, the NMP not only sought to achieve self-reliance but also adopted a comprehensive programme to protect the people and the small producers.

5.1 Why did India Adopt the NMP?

In order to explain why India adopted the NMP, we have to first briefly present India's colonial history. History of capitalism is one of war and violence. Capitalism struck its roots first in the Western Europe. Right from its very birth, capitalists in a country were so wealthy that they could raise a military much larger than what the king of the country could afford. Hence, kings became just puppets in the hands of the capitalists (see Hunt and Lautzenheiser (2014) in this context). Capitalists at that time were a divided lot; they were divided on the basis of their nationalities. Capitalists were imperialists and right from the very beginning of capitalism started to expand their business empire by conquering other countries. By the beginning of World War I, the capitalists of Western Europe and the US conquered almost the whole of the rest of the world. They conquered countries to establish monopoly rights over purchase and sale in that country. For example, the British capitalists, East India Company to be more precise, conquered India. The principal objective was to establish monopoly right of business in India. This conquest enabled them to destroy indigenous bases of production, own all the raw materials and purchase labour from India at the lowest possible price and sell their products in India at the highest possible price. To retain a colony, the capitalists of one country had to fight off the capitalists of other countries. This greed for larger shares of the colonies led to two World Wars. World War I weakened the Tsar of Russia so much that the Bolsheviks (communists) overthrew him and took over State Power giving birth to the first Socialist State in the world based on Marxist-Leninist principles. Such a socialist state is one where there is no private property and all the capital and natural resources of the country are collectively owned by the people. As soon as the Socialist State was born, the capitalist powers attacked it and the war that ensued led to the expansion of the communist rule to other countries and finally, the Socialist State grew into the formidable Soviet Union. It emerged as a Super Power after World War II was over. Emergence of Soviet Union as a Super Power inspired workers' movements all across the capitalist world and socialism emerged as a viable alternative to capitalism. The capitalists felt terribly threatened. They shunned their differences and became united and resolved to destroy Soviet Union. Thus, the Cold War in which the Soviet Union and the capitalists fought with each other in the other countries of the world to gain control over them became much fiercer. The capitalists finally won the Cold War, and the Soviet Union disintegrated in 1991. (To know why Soviet Union lost the Cold War, one may go through Ghosh and Ghosh (2019[b], Chapter 6)). With the Cold War gathering tremendous momentum after the Second World War, the capitalist countries had to utilize all their resources for fighting the Soviet Union. They did not have any resources left for retaining their hold over their colonies containing

the rising nationalist movements, which, in all probability, were being promoted by the Soviet Union to weaken the capitalist powers. Hence, they granted them independence. However, with the end of the Cold War, almost all their erstwhile colonies, just like India, have become their colonies again. They are again doing monopoly business all across the world. However, the emergence of another Socialist State, China, as a Super Power not only in the sphere of military but also in that of business, knowledge and technology has again threatened the global business empire of the capitalists. The Cold War has also started again with new vigour.

Given this brief history, we can now seek to explain why India adopted the NMP, which is modeled after the Soviet model of planned economic development. There may be two reasons for this. First and the most important reason may be the following. The Congress led the nationalist movement in India. It is quite plausible that the Congress received the resources needed to run itself and organize the nationalist movement from the Soviet Union. The British capitalists on the other hand formed and ran the religious fundamentalist parties which fomented communal tensions and riots to weaken the nationalist movements(for supportive data and discussions, see, for example, Dutt(1970), Khan Durrani (1944) and Stewart(1951)). The British capitalists succeeded in inciting extremely violent religious riots on such a scale that it became possible for them to divide India on religious lines into India and Pakistan. A fundamentalist party assumed power in Pakistan. Accordingly, it joined the capitalist bloc. The Congress came to power in India. Naturally, therefore, it aligned itself to the Soviet Union, adopted the Soviet model of planned economic development and set socialism as the goal to achieve. In fact, as a result of the Cold War going on in the colonies, many of the newly independent colonies joined the Soviet bloc, while the others became allies of the capitalist bloc.

The second reason why India and many other newly independent countries adopted the Soviet model of planned economic development may be the following. Soviet Union was a socialist society based on the Marxist-Leninist Principles. In this lecture, henceforth, we shall refer to such a socialist society simply as a socialist society. The Soviet Union was the first socialist state that was born in this world. We will illustrate what a socialist state is like with the example of Soviet Union. In Soviet Union, there was no private property. All the non-labour resources of the country were owned collectively by the people. All the organizations that carry out production, referred to as firms in economics, were run by the State on behalf of the people. Some of the small firms were run by workers' cooperatives on behalf of the people. The objective of the Soviet Union was to utilize and develop its human resources to the fullest possible extent. With this end in view, it aimed at providing every worker with a job that best suited his/her ability and every individual with quality basic food, clothing and shelter in adequate quantities. It also sought to create a system of universal healthcare and education which would provide ev-

ery individual with quality health care and education completely free of cost on the scale the individual required or wanted. It also sought to create a strong defence sector capable of repulsing the attacks of the capitalist bloc and a knowledge and technology sector capable of producing state of the art knowledge and technology. They invested very heavily in the knowledge and technology sector to become world leader in that sphere. Soviet Union realized right from its birth that without a rapidly growing independent knowledge and technology sector that matches or surpasses the best in the world, it is not possible to remain independent and defend itself. Since productive resources are extremely scarce relative to needs, Soviet Union produced only those goods and services which were necessary for achieving the objectives noted above. We will henceforth refer to these goods and services as necessary goods. It managed and developed its economy through a series of Five Year Plans. Taking into account the available stocks of labour and non-labour productive resources available and productive capacity existing for each necessary good, a given Five Year Plan set production target for each of the necessary good for each of the five years covered by it. It set the production targets in such a manner that all the available labour and the productive capacities of all the necessary goods were fully utilized. This ensured that the outputs of the necessary goods each year were at the maximum possible levels. A part of the necessary goods was given to the people so that their requirements of basic quality food, clothing and shelter were adequately met. Another part was utilized to create the system of universal healthcare and education. The remaining part was utilized to increase the productive capacities of the necessary goods and to build a state of the art and independent knowledge and technology and defence sector. Prices of all the necessary goods and the wage rates were fixed by the planners. Thus, prices of food, clothing and shelter were administered by the planners and the produced amounts of these items were distributed among the people through State run stores by fixing per head quota for each item. Wages were fixed at such a level that everyone was able to buy the quota amount of the aforementioned consumption items. Outputs of necessary goods increased at a fast pace over time. With the increase in the outputs of necessary goods, the consumption quotas also increased until they reached the desired level. Thus, the Soviet Union was the first State in the world to create a civilized society, where every worker got a suitable gainful job and every individual received basic quality food, clothing and shelter in adequate quantities. It also created a system of universal healthcare and education, which provided every individual with quality health care service and education free of cost. Capitalists' propaganda machinery, which was an integral part of the Cold War, gave a completely false impression of the Soviet Union to create among people a strong resentment against socialism.

The just, egalitarian and civilized society that Soviet Union built made deep impression on many of the newly independent countries including India and they embraced

socialism and the strategy of the planned economic development of the Soviet Union for developing their economies.

5.2 Why did India Give up the Nehru-Mahalanobis Programme of Development?

The reason why India had to give up the NMP may be briefly stated as follows. The development of the heavy and basic industries, which constituted the core of the NMP, was highly import intensive for the following reasons. India did not have the technology for setting up these industries. The technology could be bought only in the form of machinery and equipment. Thus, the NMP involved imports on a very large scale. However, India's export potential on account of its lack of access to any independent base of knowledge and technology was so limited that it was not possible for India to implement the NMP on the basis of its own resources alone. To implement it, it had to secure aid and it secured aid not only from the Soviet Union but also from the advanced capitalist countries run by the capitalists. This seriously compromised India's independence. Right from the very beginning the capitalists decided at what pace India could implement its strategy and exercised strong influence on India's policy making.

The other major shortcoming of the NMP was that it did not make any effort at developing its own knowledge and technology. A country that is dependent on foreign countries for knowledge and technology can never be self-reliant. Such a country can never devise ways and means of sustaining its production and investment solely on the basis of its own indigenous resources nor can it be competitive in the world market. Development of own knowledge and technology received the highest priority in the planned development strategy of the Soviet Union. It invested very heavily in its knowledge and science and technology (S&T) sector and became a Super Power not only in the sphere of military but also in that of knowledge and S&T.

The two shortcomings noted above led to the downfall of the NMP. By the end of the seventies India succeeded in building a broad based industrial sector capable of producing almost all the industrial goods India needed. However, India still remained crucially dependent on the rest of the world for knowledge and technology and for such basic items as petroleum and petroleum products. Planners also realized that the industries built were based on old technologies. Hence, they were high cost and it was not possible to compete in the world market with such an industrial base. Hence, planners felt that it was absolutely essential to modernize the industries. Until the end of the seventies India never borrowed from the international credit market to implement the NMP. It made do with only foreign aid. However, to modernize its industries at a very high speed, India from the beginning of the eighties started borrowing very heavily from the international credit market at a high interest rate. These loans, which we will refer to as external loans, were denominated in foreign currency, that is, they had to be repaid in foreign currency and

interest payments had to be made on them in foreign currency. Repayment of loans that mature in a given year plus the interest payments made on loans existing or outstanding in a given year is referred to as debt service charges in the given year. Every year during the eighties India imported on a large scale and the value of its imports exceeded by far its foreign exchange earnings from export and India had to meet the gap by borrowing from the international credit market. All through the eighties, therefore, India's external debt and external debt service charges grew rapidly. Every year in the eighties except for the initial one, value of India's import plus India's external debt service charges exceeded by a large amount India's foreign exchange earnings and this gap had to be met with loans from the international credit market. This gap grew rapidly all through the eighties. All through the eighties, foreign lenders consisting of the large foreign financial institutions controlled by the Western capitalists lent to India as much as India wanted. However, in 1990, these lenders without any warning suddenly woke up to the risk of lending to India and stopped lending to India. This put India in dire straits. It was not possible for India to meet its import bill and debt service charges as its export earnings fell far short of the required amount in 1990. To tide over the crisis, India had to seek assistance from the IMF, an international agency completely under the control of the Western capitalists. IMF obliged. However, in return, it made India give up the NMP and adopt in its place the New Economic Policy (NEP).Pumping of large amounts of loans into a country and sudden stoppage of loan inflows in times of BOP difficulties are a favourite strategy that the foreign lenders or Western capitalists employ to bring the aberrant countries (countries that deviate from their desired path of capitalist development) under their control. The latest example of such conquest is Greece. (For details about the NMP and the crisis that brought it to its end, one may go through Ghosh and Ghosh (2016). To learn the details of the Greek crisis, one may go through Ghosh and Ghosh(2019[a])). We will now briefly specify the main features of the NEP and show how it contrasts with the Nehru-Mahalanobis Programme.

India adopted the NEP in July, 1991 and is pursuing it since then. The NEP recommends complete removal of all kinds of controls and regulations imposed under the NMP, privatization of all government production facilities and natural resources and dismantling of the whole system of planning. In other words, the objective of the NEP is to hand over all the capital and natural resources of the country to the capitalists and establish a free market economy without any kind of government regulation or intervention so that the capitalists get a free hand in running and managing India.

In this subsection, we have discussed how India had to give up its very humane strategy of planned economic development of the economy on the socialist path and embrace capitalism. We will dwell on the reasons for this failure further below:

5.2.1 Giving up of the NMP: Resolution of a Few Puzzles

We have explained above how India had to give up the NMP. However, it leaves a few important questions unanswered. First, why did India choose a development programme that it could not implement using only indigenous resources? If a country has to depend upon foreign aid to implement its development programme, it has to abide by the dictates of the donors and the donors control the speed with which it is able to implement its programme. Thus, right from the very beginning capitalists kept India's development programme under control. Clearly, an agriculture, village and cottage industry based development strategy fortified with intense efforts at developing original knowledge and technology to improve the productivity of the sectors mentioned above would have been sustainable and equitable.

Second, why did India completely neglect the knowledge and the technology sector? Obviously, a country that fails to develop its own knowledge and technology to remove its dependence on foreign resources can never be self-reliant. Developing a country's own knowledge and technology is the key to achieving self-reliance. If, for example, a country does not have the capability of developing its own knowledge and technology, how will it remove its dependence on imported items such as petroleum and petroleum products, chemical fertilizer etc.?

Finally, why did the planners in the eighties go in for the modernization drive based on large scale import of machinery and equipment financed with massive external borrowing from the international credit market at high interest rates? The planners should have known that a country cannot compete in the world market using imported technology and the modernization drive would lead to only ballooning of import bill and external debt service charges without any improvement in export earnings. Moreover, by the time modernization of the existing industries was complete, a new set of technologies would come up making the modernized setups obsolete. Thus, the planners must have known that the modernization drive would only lead India into an external debt trap and India would be completely at the mercy and control of the foreign lenders (Western capitalists). Why did the planners then undertake the modernization drive in the eighties? We will in what follows seek to explain these above mentioned deliberate lapses on the part of the Indian planners.

The hypothesis that seems most plausible is the following. Pakistan sided with the capitalists and the capitalists through Pakistan threatened India with war and severe internal strife and violence if India did not heed their dictates. Even though India could count on Soviet Union's help, it did not risk any disruption in its development process and made the first two compromises noted above. In the eighties, Soviet Union became very weak and could not give any protection to India. In fact, it surrendered to the capitalists and

gave up socialism in 1985. Taking advantage of this situation, capitalists through a group of non-resident Sikhs started a violent separatist Khalistani movement in Punjab (see Pruthi(2004) and Van Dyke (2009)) in this context). Indian leadership felt unnerved and to save themselves and the country followed the dictates of the capitalists and started the modernization drive. Thus, the capitalists never allowed India to be independent and saw to it that it remained as dependent and underdeveloped as they wanted it to be.

6. Atma Nirvar Bharat under the New Economic Policy (NEP)

We will explain here the concept of the Atma Nirvar Bharat under the New Economic Policy. As we have already pointed out, one important objective of the NEP is to establish free market by removing all kinds of regulations and controls imposed over production, investment, pricing, export, import etc. so that the capitalists get a free hand in deciding what to produce, how much to produce, where the prices to be set etc. In other words, one principal objective of the NEP is to give the capitalists a free hand in running and managing our economy. The second major objective of the NEP is to hand over to the capitalists all the capital and natural resources of the country by transferring to them all the public sector enterprises built during the NMP and also through other means, which we will delineate shortly. As we have already argued, capitalists here mean the Western capitalists. Since the NEP seeks to deliver India to the Western capitalists, the goal of 'self reliance' of the NMP era loses its relevance. A country under the control of the foreigners is the antithesis of a self-reliant country as defined by the NMP. The Western capitalists, obviously, would want India to be as dependent on the Western world as possible so that they can make the Indian economy collapse whenever they want. This power enables them to keep their business representatives and the political parties in India under their complete control. What does 'Atma Nirvar Bharat' mean, then, under the NEP? We will discuss that below.

The NEP seeks to make every producer and every individual 'Atma Nirvar' by withdrawing all kinds of protection, support and subsidy given to the financial institutions, small producers, farmers and the people by the government during the NMP. This amounts to withdrawal of government guarantee of deposits, insurance policies etc. of the financial institutions, elimination of subsidies on input and credit used by the farmers and other small producers, elimination of the government's food procurement and distribution operations and commercialization of the universal health care and education system of the government of the NMP era. This is the concept of the NEP's 'Atma Nirvar Bharat' where every individual will be on his own. No one will get any kind of support from the government, it does not matter how poor or helpless an individual might be. Thus, in the 'Atma Nirvar Bharat' of the NEP, all the individuals, bereft of any kind of support from the government, will be subject to the capitalists' exploitative machinery that will create large scale unemployment, push down the wages and interest rates to the lowest possible

levels, continuously raise prices and worsen the quality of employment impoverishing the people.

7. Taxes and Public Benefits under Capitalism: For Whom the Bell Tolls

Here we will discuss who pay the taxes and who get the public benefits in the capitalist world. Obviously, the capitalists, who do not baulk at killing billions of people to expand their business empire, do not usurp the State Power to pay taxes. It is eminently sensible to hypothesize that the tax-expenditure policy of the governments in the capitalist countries including India under the NEP is to make the poor pay all the taxes and use the tax revenue for the benefit of the rich consisting of the capitalists and their entourage of large businessmen, who own the large unincorporated enterprises, and the high-skilled workers including the high level politicians. We will try to establish this claim taking the case of India.

We consider direct taxes first. The NEP has reduced drastically income tax rates on the rich. Now, the marginal income tax rate is capped at 30 percent (see Table 15). From an annual income of Rs.2.5 lakh to that of Rs.15 lakh, the marginal income tax rate has increased by 30 percent. In fact, it has increased at the rate of 5 percent for every additional annual income of Rs. 2.5 lakh. Shockingly, the increase in the marginal tax rate has stopped at the annual income of Rs.15 lakh. It has not increased any further. Thus, the incomes of the rich in India, who have in their command most of India's GDP, are taxed at the minimum possible rate. Moreover, the rich through their hold over the government evade taxes on a large scale so much so that around 70 percent of India's direct tax collection comes from the salaried people (Government of India(2018)). In all likelihood, most of the direct taxes come from the government employees and government enterprises so that the net contribution of the direct taxes to financing government expenditure may not be significant. Moreover, as we find from Table 8, prices in India are rising at a galloping rate. However, the income tax slabs and the exemption limit, which should have been revised upward in the same proportion as the increase in prices, have been kept more or less the same. This means that more and more poor people are getting into the income tax net. Clearly, if prices go on rising at a high rate, as is happening in India, and the income tax slabs are left unchanged, even the poorest of the poor, in case they survive, will eventually get into the income tax net. This is a clever strategy of the capitalists to make the poor pay direct taxes.

As direct tax revenue is unlikely to make much contribution to financing government expenditure, the government in India takes recourse mainly to indirect taxes to finance its expenditure. As a result, the share of indirect tax revenue in total tax revenue has increased steadily under the NEP and at the present the major part of India's tax revenue comes from indirect taxes, which are highly regressive and unjust (see Table 16). Of late

the coverage of the Goods and Services Tax (GST) has been extended to cover even the most basic necessities of life such as paddy, wheat, puffed rice etc. It is needless to say that the rich who enjoy the State Power and the State patronage, do not pay any indirect taxes either. According to Oxfam India (2022), in 2021, in India, approximately 64 percent of the total goods and services tax (GST) in the country came from the bottom 50 percent of the population, while only 4 percent came from the top 10 percent.Thus, all the taxes come from the poor and the government uses the taxes to build infrastructure for the rich and strengthen the administration and defence to keep the poor under control, even though to keep up the facade of a welfare state a small fraction of the poor people's taxes may be spent on the poor. Thus, the poor pay all the taxes and the rich get all the benefits of public services in the capitalist world including India.

8. Land Grab of the Farmers and Pauperization of the Small producers in the Capitalist World: Legal and Illegal Strategies

The history of transition from feudalism to capitalism in the Western European countries was extremely violent and gory (see, for example, Chapter 3 of Ghosh and Ghosh (2019[b])). The process of transition is now complete in the Western European countries and the US, among others. In these countries, at the present, the corporate sector under the complete control of the capitalists, produces almost all the goods and services and own almost all the capital and natural resources of the country displacing the small producers and the farmers. This is not true of the developing countries like India where, still, quite a sizeable part of the GDP is produced by the small producers, who constitute the unorganized sector in India (see Table 2) and the small and the marginal farmers own about 85 percent of India's agricultural land (see NABARD (2021)). In our view, the continued importance of the small producers in India is due in a large measure to the NMP. It undertook land reforms, took away land from the zamindars (big landlords) and distributed them among the small farmers. It extended all kinds of support and protection to the farmers and small producers through the adoption of the procurement operations, provision of inputs and credit on an adequate sale at highly subsidized prices and interest rates, reservation of many sectors of production and distribution exclusively for the small producers. The objective of the NEP is to establish full-fledged capitalism in India by handing over all the capital and natural resources of the country to the capitalists. It has to, therefore, handover the land of the farmers and the businesses of the small producers to the capitalists. One important strategy that the NEP has adopted for this purpose is the following. It aims at withdrawing all kinds of protection given to the farmers and small producers by the NMP. In the absence of the procurement operations of the government and government intervention in the agricultural market to ensure a fair price for the farmers, the farmers will have to sell their produce directly to the capitalists who are enormously mighty financially and wield State Power. The farmers on the other hand are numerous

and have no financial strength. They are heavily indebted and are, therefore, under the compulsion to sell their produce as fast as possible after harvest to minimize debt service charges. They do not have the resources to sell their produce directly to the consumers. Moreover, their crop is perishable and they do not have adequate storage facility. Under free market conditions, therefore, the capitalists will pay the farmers the lowest possible price. The NEP has also made the financial institutions profit driven commercial organizations and has withdrawn all its guarantees and support from them. It has also imposed on them stringent lending norms such as Basel norms, which build a strong bias against lending to the risky borrowers and farmers and small producers are financially weak and are, therefore, considered extremely risky by the financial institutions. Under the NEP, therefore, they get inadequate amounts of loans at usurious interest rates. The capitalists and the government under the control of the capitalists continuously raise the prices of the inputs the farmers use. All these factors make the farmers default on their loans and, thereby, they lose their land to the lenders, who are under the control of the capitalists. The inadequate amounts of loans and usurious interest rates substantially erode the competitive strength of the small producers vis-a-vis the capitalists. Moreover, the capitalists continuously raise the prices of the inputs the small producers use. All these factors make the small producers lose out in competition against the capitalists who capture their market.

Mainstream economists in the capitalist countries, who are in the payroll of the capitalists, have empirically derived the result that the corporate sector is much more efficient than the small producers and industry is much more productive than agriculture. Accordingly, in their view, transfer of land from the farmers and small producers to the capitalists constitutes economic development. Following on this precept, the governments in capitalist countries pass laws that empower the government to forcibly acquire land from the farmers and give it away free of cost to the capitalists. Obviously, the capitalists utilize the land in the most profitable avenue. This implies that the acquired land gets used to cater to the needs of the rich who have the highest ability to pay. On the other hand, the farmers lose their land and food output falls reducing the food consumption of the poor. In the name of economic development, therefore, the rich make substantial gains at an enormous cost to the poor.

8.1 Crime and Punishment

In every capitalist country, a section of the people work as criminals. Since the criminals are no match against the State Power, how do they survive? Obviously, only the rich, who wield the State Power, have the resources to employ them and protect them from the State Power. It may be reasonable to assume that without the patronage of the rich, they are unlikely to survive. It is possible for the rich to employ them to grab the farmers' land and take away the businesses of the small producers. To give an example, the government

sometimes develops infrastructure such as highways in the land forcibly acquired from the farmers. The highways connect remote areas in the possession of the farmers to the cities. The rich, then, may employ the criminals to forcibly acquire from the farmers the land adjoining the highways so that they can build luxury farm houses, resorts etc. on them. To cover up the extreme deprivation caused to the farmers by the legal and illegal forcible acquisition of land, the political parties and the media spread the lie that the farmers have lost interest in farming and they are much relieved if they get land purchase offers from the government or the land sharks. All the farmers know that a given amount of money is no substitute for their land. They know that the latter will let them survive and give them creative, known and satisfying work generation after generation, while the purchasing power of a given amount of money held as loans with the financial institutions will dwindle into insignificance within a short time, given the galloping rate of inflation and the extremely low nominal interest rate. It is, of course, true that the government at the behest of the capitalists is making farming by the ordinary farmers as unprofitable as possible through ways that we have already described. In fact, the tremendous strain the capitalists have subjected the farmers to has led to a steep increase in the number of farmer suicides (see in this connection Government of India (2016)). Still the farmers can cultivate their land using traditional technology and inputs that they themselves produce and, thereby, survive. The farmers know that if they lose land, they will lose the job that they know and love, their source of livelihood and will be on the brink of extinction.

From the media reports it seems that the criminals also extort money from the small producers harassing them and making their businesses unprofitable.

The media reports also give the impression that the criminals in the capitalist world traffic girls from poor and helpless families and make them slaves in brothels and brothels exist in the hearts of almost all the major cities of the capitalist countries.

Criminals may also be hired to incite communal riots and violence to divide and weaken the masses.

9. Our Societies: Where are They Headed?

The capitalists at the present are investing very heavily in artificial intelligence and robotics to make the production process fully automatic so that workers become completely redundant in the production of goods and services. In developing countries, the farmers and the small producers are continuously losing their land and businesses to the capitalists in legal and illegal ways. In this scenario, unless the masses become aware of the real reason for their plight, get united and form their own political party to wrest the State Power from the capitalists, they will be under a grave threat to be extinct.

In this lecture, I have presented my view of how the capitalist world works. I think that my view is true. There are other views as well. Mainstream economics, for example, assumes that a capitalist economy is not driven by any individual or a group of individuals. Instead, it is driven by impersonal market forces and the job of economics is to decipher how these forces work and what kind of outcome they produce. I have already explained why this view is false and how it serves the interest of the capitalists. There may be a plurality of views as regards how the capitalist world works. However, the truth is one, but there is no limit to the number of lies. I think that it is extremely important for everyone to identify the truth.

References

Ahamed, D, and Ghosh, A.(2021). India and COVID-19: The Appropriate Method of Economic Management, Artha Bekshan, September – December, Vol.30, Nos. 2 & 3.

Banerjee, S. and Prasad, S.(2017). Small businesses in the GST regime, Economic and Political Weekly, LII(38), 23 September.

Chandrasekhar, C.P. and Ghosh, J. (2018).The Banking Conundrum: Non-performing Assets and Neo-liberal Reform, Economic and Political Weekly,Vol.53, Issue No. 13, 31 March.

Dutt, R.P.(1970). India Today, Second Edition, Manisha, Calcutta.

Friedman, M. (1968). The role of monetary policy, American Economic Review 58, March, pp. 1–17.

Ghosh, C. and Ghosh, A. (2021). Public Finance (Third Edition), PHI Learning Private Limited, Delhi.

Ghosh, C. and Ghosh, A. (2021[a]). Macroeconomics (Second Edition), PHI Learning Private Limited, Delhi.

Ghosh, C. and Ghosh, A.N.(2019[a]). Keynesian Macroeconomics Beyond the IS-LM Model, Springer Nature.

Ghosh, C. and Ghosh, A.N.(2019[b]). An Introduction to Economics, Palgrave Macmillan

Ghosh, A. (2017). Impact of Demonetisation on India: A Macro-theoretic Analysis, Trade and Development Review, Vol.9, Issue 1-2, 2017, pp. 57-73

Ghosh, C. and Ghosh, A. (2016). Indian Economy: A Macro-Theoretic Analysis, PHI Learning Private Limited, Delhi.

Government of India (2016).State/UT-wise Suicides by Farmers and Agricultural Labourers due to Bankruptcy or Indebtedness during 2014 and 2015, Ministry of Agriculture and Farmers Welfare.

Government of India(2018). Union Budget 2018-19, Ministry of Finance.

Hunt, E.K. and Lautzenheiser, M. (2014). History of Economic Thought: A Critical Perspective, Third Edition, PHI Learning Private Limited, Delhi.

Keynes, J.M.(1936). The General Theory of Employment. Interest and Money, Macmillan, London.

Khan Durrani, F.K.(1944). The Meaning of Pakistan, S.H. Muhemmad Ashraf, Lahore.

NABARD (2021). National Paper (NABARD) - PLP 2020-21.Retrieved from https://www.nabard.org/auth/writereaddata/CareerNotices/2309195333Paper%20on%20Market%20Linkages%20on%20Agriculture%20Commodities.pdf .

Oxfam India (2022). Inequality Kills: India Supplement 2022.

Oxfam India (2018). India Inequality Report 2018.

Picketty, T.(2014). Capital in the Twenty-First Century, Belknap Press, World.

Pruthi, R.(2004). Sikhism and Indian Civilization, Discovery Publishing House, India.

Reserve Bank of India (2019). Annual Report 2018-19

Reserve Bank of India (2018). Financial Stability Report 2018

Reserve Bank of India (2013). "Macroeconomic and Monetary Development", Third Quarter Review, RBI Web Site.

Reserve Bank of India (2013[a]). "India's foreign Trade", Table 127, Handbook of Statistics on Indian Economy, September 16.

Reserve Bank of India (2012). "The External Sector", Macroeconomic and Monetary Development, Second Quarter Review.

Stewart, N.(1951). British Policy in Indian History, Science & Society, Vol.15, No.1, Winter, pp 49-55.

Stiglitz, J.E.(2012). The Price of Inequality: How Today's Divided Society Endangers Our Future, W.W.Norton and Company, New York

U.S. Department of Agriculture (2018). Food Security in the US, Economic Research service.

Van Dyke, V.(2009). The Khalistani Movement in Punjab, India and the Post-Militancy Era,: Structural Change and New Political Compulsions, Asian Survey, Vol.49, No.6, Nov./Dec, pp. 975-997.

Table 1

Unemployment Rate (%) in a Few Major Capitalist Countries

	2010	11	12	13	14	15	16	17	18	19	20	21
France	8.9	8.8	9.4	9.9	10.3	10.4	10.1	9.4	9.0	8.4	8.0	8.1
Germany	7	5.8	5.4	5.2	5	4.6	4.1	3.8	3.4	3.1	3.8	3.5
Italy	8.4	8.4	10.6	12.1	12.7	11.9	11.7	11.2	10.6	9.9	9.2	9.8

Spain	19.9	21.4	24.8	26.1	24.4	22.1	19.6	17.2	15.3	14.1	15.5	14.7
UK	7.8	8	7.9	7.5	6.1	5.3	4.8	4.3	4.0	3.7	4.5	4.5
US	9.6	8.9	8.1	7.4	6.2	5.3	4.9	4.4	3.9	3.7	8.1	5.5

Source: World Bank

Table 2

Contributions of the Organised Sector and the Unorganised Sector to the Value added of Major Sectors of Production and NDP

	1993-94		2003-04		2010-2011	
Industry	Organised	Unorganised	Organised	Unorganised	Organised	Unorganised
Agriculture, Forestry and Fishing	3.5	96.5	4.1	95.9	5.8	94.2
Mining, manufac Turing	64.2	35.8	60.5	39.5	64.5	35.5
Electricity, construction and services	47.1	58.9	53.1	46.9	42.2	51.8
NDP	36.8	63.2	43.3	56.7	45.1	54.9

Source: CSO (2005): National Accounts Statistics 2005, Government of India and National Accounts Statistics 2012, Government of India

Table 3

Employment in the Organised sector (in million)

Year	Growth Rate of GDP at Constant (2004-05) Prices	Number of Workers Employed
1994-95	6.4	27.53
2000-01	5.3	27.79
2001-02	5.5	27.20
2003-04	8.1	26.45
2004-05	7.0	26.46
2005-06	9.5	26.96
2006-07	9.6	27.24
2007-08	9.6	27.55
2008-09	6.7	28.18
2009-10	8.4	29.00
2010-11	8.4	29
2011-12	5.3	29.65

Source: RBI

Table 4

Sectoral Shares in Work Force (2004-05)

	Organised Sector	Unorganised sector
Percentage of Workforce Employed 2004-05	6	94

Source: NSSO 61st Round

Table 5

Labour Force, Work force and Unemployment (in million)

	1993-94	1999-00	2004-05	1999-00 to 2004-05 Point to point annualised Growth rate
Labour Force	387.94	406.05	469.06	2.93
Work Force	374.45	397.00	457.82	2.89
Number of Unemployed	7.49	9.05	17.24	

Source: NSSO and Report of the Task Force on Employment Opportunities (planning Commission)

Table 6

Share of Wage in the Net Value Added of the Organized Manufacturing Sector

Year	Wage/NVA	E/NVA
1990-91	25.60837619	39.962135
1991-92	24.77360615	38.24844028
1992-93	23.62322467	38.68204933
1993-94	19.89892122	32.3853645
1994-95	20.29125577	32.5677205
1995-96	20.06521796	32.36510722
1996-97	16.87517837	29.48901451
1997-98	17.89320363	31.46523061
1998-99	17.06744177	30.67889995
1999-2000	16.97329792	30.8718755
2000-2001	19.26644502	35.3141847
2001-2002	19.01443998	35.38379755

2002-2003	17.22701817	32.00533666
2003-04	15.01709971	28.74386123
2004-05	12.94119363	24.78039248
2005-06	12.07694285	23.73090671
2006-07	11.19244953	22.42742604
2007-08	10.59613904	21.89461019
2008-09	11.32545249	24.52627358
2009-10	11.64315067	24.82748124
2010-11	12.1556146	26.01504869
2011-12 (R)	13.08202487	28.13385202
2012-13	13.01676982	27.94267692

Source: Annual Survey of Industries, Ministry of Statistics and Programme Implementation.

Where W= WAGES TO WORKERS

E=TOTAL EMOLUMENTS and, NVA= NET VALUE ADDED.

Table 7

Annual percentagr growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 US dollars

	1991	92	93	94	95	96	97	98	99	2000		
China	9.3	14.3	13.9	13.1	11.0	9.9	9.2	7.9	7.6	8.4		
France	1.0	1.6	-0.6	2.3	2.1	1.4	2.3	3.6	3.4	3.9		
Germany	5.1	1.9	-1.0	2.5	1.7	0.8	1.8	2.0	2.0	3.0		
Italy	1.5	0.8	-0.9	2.2	2.0	1.3	1.8	1.6	3.7	1.8		

Portugal	4.4	1.1	-2.0	1.0	4.3	3.5	4.4	4.8	3.9	3.8	
Spain	2.5	0.9	-1.0	2.4	2.8	2.7	3.7	4.3	4.5	5.3	
UK	-1.2	0.4	2.6	4.0	4.9	2.7	3.1	3.4	3.1	3.8	
USA	-0.1	3.6	2.7	4.0	2.7	3.58	4.5	4.4	4.7	4.1	

	2001	02	03	04	05	06	07	08	09	10		
China	8.3	9.1	10.6	10.1	11.4	12.7	14.2	9.6	9.2	10.6		
France	2.0	1.1	0.8	2.8	1.6	2.4	2.4	0.2	-2.9	2.0		
Germany	1.7	0.0	-0.7	1.2	0.7	3.7	3.3	1.1	-5.6	4.1		
Italy	1.8	0.3	0.2	1.6	0.9	2.0	1.5	-1.0	-5.5	1.7		
Portugal	1.9	0.8	-0.9	1.8	0.8	1.6	2.5	0.2	-3.0	1.9		
Spain	4.0	2.9	3.2	3.2	3.7	4.2	3.8	1.1	-3.6	0.0		
UK	2.8	2.5	3.3	2.5	3.0	2.7	2.6	-0.5	-4.2	1.5		
USA	1.0	1.8	2.8	3.8	3.3	2.7	1.8	-0.3	-2.8	2.5		

	2011	12	13	14	15	16	17	18	19	20	21
China	9.5	7.8	7.7	7.3	7.0	6.8	6.9	6.7	6.0	2.2	8.1
France	2.1	0.2	0.7	0.2	1.1	1.1	2.3	1.9	1.8	-7.9	7.0
Germany	3.7	0.4	0.3	1.6	1.5	2.2	2.7	1.1	1.1	-4.6	2.9

Italy	0.6	-2.8	-1.7	-0.4	0.8	1.3	1.7	0.9	0.5	-9.0	6.6
Portugal	-1.8	-4.0	-1.1	0.9							
Spain	-1.0	-2.6	-1.7	1.4	3.8	3.0	3.0	2.3	2.0	-10.8	5.1
UK	2.0	1.2	2.2	2.9	2.6	2.3	2.1	1.7	1.7	-9.3	7.4
USA	1.6	2.3	2.2	2.4	2.7	1.7	2.3	2.9	2.3	-3.4	5.7

Source: World Bank

Table 8

Rate of Consumer Price Inflation (Annual %)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
France	1.5	2.1	1.9	0.8	0.5	0.04	0.2	1.03	1.9	1.1
Germany	1.1	2.1	2.0	1.5	0.9	0.5	0.5	1.5	1.7	1.4
UK	2.5	3.9	2.6	2.3	1,4	0.4	1.0	2.5	2.3	1.7
USA	1.6	3.1	2.0	1.5	1.6	0.1	1.3	2.1	2.4	1.8
HIC[1]	2.0	3.4	2.7	1.5	1.0	0.32	0.4	1.5	1.8	1.6
India	11.1	8.9	9.3	10.9	6.4	5.9	4.1	2.5	4.9	7.7

[1]High Income Countries

Source: International Monetary Fund

Table 9

Growth Rate of GDP, Net FDI, Foreign Portfolio Investment, Government Consumption and Gross Fiscal deficit (GFD)

Year	Growth Rate of GDP At Factor Cost (At constant prices Base 2004-05)	Net FDI (US $ Million)	Net Portfolio Investment (US $ Million)	Total (US $ Million)	Government Consumption (in Rs bn)	GFD[1] (% of GDP)	Rate Of GDCF[2]	Rate Of NDCF
2000-01	5.3	3270	2590	5860	3247.27	5.65	24.6	16.7
2001-02	5.5	4734	1952	6686	3323.69	6.19	24.6	16.5
2002-03	5.0	3157	944	4101	3317.53	5.91	25.4	17.3
2003-04	8.1	2388	11377	13765	3409.62	5.48	27.3	19.5
2004-05	7.0	3712	9291	13003	3545.18	3.88	32.8	25.5
2005-06	9.5	3033	12492	15525	3860.07	3.96	34.9	27.8
2006-07	9.6	7693	6947	14640	4005.79	3.38	36.2	29.2
2007-08	9.6	15891	27434	43325	4389.19	2.54	39.0	32.2
2008-09	6.7	22343	-14032	8311	4845.59	5.99	35.6	27.9
2009-10	8.4	17965	32396	50361	5517.02	6.48	38.4	30.9
2010-11	8.4	11305	30292	41597	5843.52	5.87	39.8	32.5

2011-12	6.5	22006	17171	39177	6345.59	5.89	38.8	31.1
2012-13	4.5	19819	26891	46710	6620.33	5.06	38.9	30.9
2013-14	4.7	21564	4822	26386	6873.89	4.85		

Source: RBI [1]Gross fiscal deficit, [2]Gross domestic capital formation

Table 10

Exchange Rate of the Indian Rupee vis-a-vis the US Dollar (Monthly average)

Year/ Month	US $ Average	Year/ Month	US $ Average	Year/ Month	US $ Average	Year/ Month	US $ Average
2008		Oct	46.7211	Jul	44.4174	Apr	54.4971
Jan	39.3737	Nov	46.5673	Aug	45.2788	May	55.1156
Feb	39.7326	Dec	46.6288	Sep	47.6320	Jun	58.5059
Mar	40.3561	2010		Oct	49.2579	Jul	60.0412
Apr	40.0224	Jan	45.9598	Nov	50.8564	Aug	64.5517
May	42.1250	Feb	46.3279	Dec	52.6769	Sep	64.3885
June	42.8202	Mar	45.4965	2012		Oct	61.7563
Jul	42.8380	Apr	44.4995	Jan	51.3992	Nov	62.7221
Aug	42.9374	May	45.8115	Feb	49.1671	Dec	61.7793
Sep	45.5635	June	46.5670	Mar	50.3213	2014	
Oct	48.6555	Jul	46.8373	Apr	51.8029	Jan	62.1708
Nov	48.9994	Aug	46.5679	May	54.4735	Feb	62.3136
Dec	48.6345	Sep	46.0616	June	56.0302	Mar	61.0021
2009		Oct	46.7211	Jul	55.4948	Apr	60.3813
Jan	48.8338	Nov	46.5673	Aug	48.3350	May	59.3255

Feb	49.2611	Dec	46.6288	Sep	54.3353	June	59.7143
Mar	51.2287	2011		Oct	52.8917	Jul	60.0263
Apr	50.0619	Jan	45.3934	Nov	54.6845	Aug	60.9923
May	48.5330	Feb	45.4358	Dec	54.6439		
June	47.7714	Mar	44.9914	2013			
Jul	48.4783	Apr	44.3700	Jan	54.3084		
Aug	48.3350	May	44.9045	Feb	53.7265		
Sep	48.4389	June	44.8536	Mar	54.5754		

Source: RBI

Table 11

Foreign Investment Inflows during 2011-12 and 2012-13 (US $ billions)

	2011-2012				2012-13	
	Q1	Q2	Q3	Q4	Q1	Q2
FDI(Net)	9.3	6.5	5.0	7.4	3.9	8.9
FPI(Net)	8.3	-7.4	18	13.9	-8.0	7.6
Growth Rate of GDP	8.0	6.7	6.1	5.3	5.5	5.3

Source: RBI

Table 12

Goods and Services Balance (US$ billion)

2011-12				2012-13	
Q1	Q2	Q3	Q4	Q1	Q2
-28.6	-30.5	-38.5	-35.0	-28.3	-38.8

Source: RBI

Table 15

Income Tax Slabs for Individuals and Hindu Undivided Family for the Financial Year 2021-22

Income Tax Slab	Tax Rate
Income up to Rs.2,50,000	No tax
Income from Rs.2,50,000 –Rs.5,00,000	5%
Income from Rs.5,00,001 – Rs.7,50,000	10%
Income from Rs.7,50,001 – Rs.10,00,000	15%
Income from Rs.10,00,001 – Rs.12,50,000	20%
Income from Rs.12,50,001 – Rs.15,00,000	25%
Income more than Rs.15,0000	30%

Source: Income Tax Department, Government of India

Table 16

Percentages of Direct and Indirect Taxes in Total Tax Revenue

	2009-10	2013-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22
Direct Tax	60.78	56.32	56.16	51.13	49.66	49.41	47.48	47.05	40.89	44.72
Indirect Tax	39.22	43.68	43.84	48.87	50.34	50.59	52.52	52.95	59.11	54.18

Source: RBI

Appendix

Identification of the Major determinants of India's Growth Performance in the Post-Reform Period in a Mathematical Model

We will prove here mathematically the propositions regarding India's growth performance during the period 2003-04 – 2013-14 using a macro-theoretic model that we hope captures all the relevant salient features of the Indian economy at the present. The model belongs to the tradition set by Keynes (1936) and Kalecki (1954) and it is borrowed from Ghosh and Ghosh (2019[a]). Following Keynes (1936), aggregate output in our model is demand-determined. The goods market equilibrium condition is, therefore, given by

$$Y = C\left(Y\frac{1}{1+\tau}(1-t)\right) + I\underset{-}{\left(r,e\right)} + G + NX\left(\frac{P^{*}e}{\underset{+}{P(1+\tau)}}, C\left(Y\frac{1}{1+\tau}(1-t)\right), I\underset{+}{\left(r,e\right)}; \underset{+}{Y^{*}}, \underset{+}{\phi}\right) \quad \text{(A.1)}$$

In (A.1), $Y \equiv$ GDP, $\tau \equiv$ indirect tax rate, $P \equiv$ domestic price received by the producers, $t \equiv$ income tax rate on income, $P^{*} \equiv$ foreign price level in foreign currency, $e \equiv$ nominal exchange rate, $Y^{*} \equiv$ foreign GDP, and $\phi \equiv$ a parameter that indicates Western capitalists' attitude towards India. An increase in ϕ implies an improvement in Western capitalists' attitude towards India. Hence, export and, therefore, net export denoted NX is an increasing function of ϕ. In (A.1), consumption is made a function of aggregate real disposable income. Let us explain. Aggregate factor income of the people is given by PY, since P is the price received by the producers. They pay $P\tau$ as indirect tax to the government per unit of Y. Hence, the price they charge the buyers is $P(1+\tau)$. Thus, aggregate gross real factor income of the people is given by $\frac{PY}{P(1+\tau)} = \frac{Y}{(1+\tau)}$. Hence, aggregate real disposable income is given by $\frac{Y}{(1+\tau)}(1-t)$. Investment is made a decreasing function of the interest rate r as well as that of e. The reason why we have made I a decreasing function of e is the following: In India, there are strong reasons to believe that it is a decreasing function of e, as well. In case of India, an important determinant of the cost of investment is the exchange rate as a large part of investment demand represents demand for imported capital goods. So, an increase in e raises the cost of investment and, hence, given expectations, reduces investment demand for Y. Production in India is highly import intensive. An increase in e, therefore, generates a strong cost-push. Both these adverse supply shocks demoralize the investors and dampen investment demand. Studying the relevant data carefully, we have already pointed out in section 4.1 that there is a strong inverse relationship between the exchange rate, the rate of capital formation and growth rate in India. (For more details, one may go through Ghosh and Ghosh (2016)). For all these reasons, we think that investment is highly sensitive to exchange rate in India. Hence, we have incorporated e as a determinant of investment and made it a decreasing function of e.

Net export, as standard, is made an increasing function of the real exchange rate. Moreover, consumption and investment are highly import-intensive. Hence, we have incorporated them in the net export function. Their increase represents a rise in import demand. Hence, net export falls. Net export is also an increasing function of Y^*. Since India is a small open economy, it has to regard Y^* and P^* as given. We, therefore, take their values as given exogenously.

We also make net export an increasing function of the Western capitalists' attitude towards India.

Besides exports and imports of produced goods and services, there also occur cross-border capital flows. Since net inflow of capital depends on the plans and programmes of the Western capitalists in the main in India, we take it as exogenously given and denote its exogenously given value by $\overline{K}$. Thus, we write the BOP equilibrium condition as

$$NX\left(\underset{+}{\frac{P^*e}{P(1+\tau)}}, C\left(Y\frac{1}{1+\tau}(1-t)\right), I(r,e); \underset{+}{Y^*}, \underset{+}{\phi}\right) + \overline{K} = 0 \qquad \text{(A.2)}$$

Following Kalecki(1954), we assume that the producers set P on the basis of the average varianle cost of production (AVC). The determinants of the AVC are the money wage rate W and P^*e. G may be an important determinant of cost. A reduction in G may lead to deterioration in law and order and administrative services, deteriorating conditions of road and other infrastructure, slower functioning of judiciary etc. All of these will lead to a substantial increase in the AVC. We assume W to be given in the short run. We, therefore, write P as an increasing function of e and a decreasing function of G. We do not show W and P^* as determinants of P explicitly, as it is not necessary for our purpose. Thus, we have

$$P = P\left(\underset{+}{e}, \underset{-}{G}\right) \qquad \text{(A.3)}$$

Substituting (A.3) into (A.2), we write it as

$$NX\left(\underset{+}{\frac{P^*e}{P(e,G)(1+\tau)}}, C\left(Y\underset{+}{\frac{1}{(1+\tau)}}(1-t)\right), I(r,e); \underset{+}{Y^*}, \underset{+}{\phi}\right) + \overline{K} = 0 \qquad \text{(A.4)}$$

Let us now compute the aggregate real indirect tax revenue collected by the government. We denote it by $\widetilde{T}$. Clearly,

$$\widetilde{T} = \frac{P\tau Y}{P(1+\tau)} = \frac{\tau}{(1+\tau)}Y \equiv vY \qquad \text{(A.5)}$$

NEP imposes stringent restrictions on government's fiscal deficit, which means government's borrowing. We assume for simplicity and without any loss of generality that the government seeks to achieve a target of zero borrowing so that government's budget constraint is given by

$$G = vY + \frac{Y}{(1+\tau)}t = vY + (1-v)tY \qquad \text{(A.6)}$$

We shall now describe the financial sector. We assume that the financial sector consists only of banks. In India interest rates are the policy variable of the Reserve Bank of India (RBI). The RBI keeps the interest rates at target levels through policies such as the Liquidity Adjustment Facility, open market operations etc. For simplicity, we make the lending rate of banks denoted *r* an increasing function of the repo rate rate denoted r_c.

Thus, we have

$$r = r(r_c) \qquad \text{(A.7)}$$

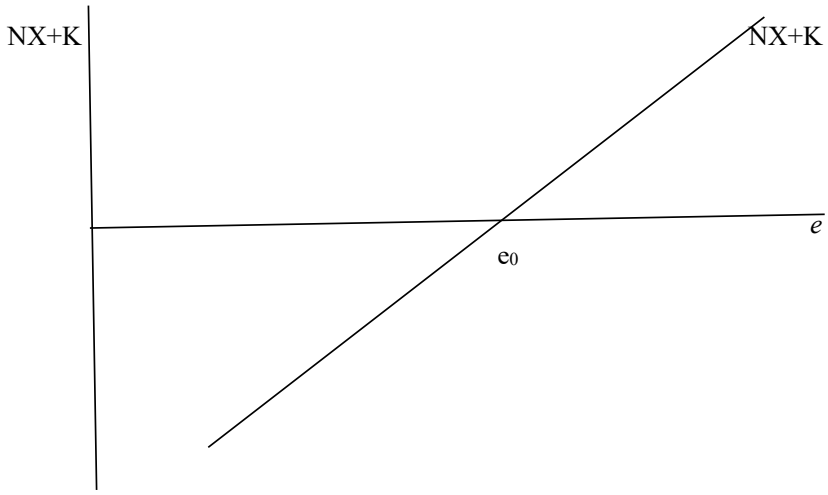
We assume that there is no credit rationing. Banks at the given interest rate meet all the credit demand that comes forth. If at the given interest rate, there emerges an excess demand (supply) for (of), credit at the target r, the RBI allows the banks to borrow from (lend to) the RBI to meet the excess demand (remove the excess supply). This is how the RBI keeps the interest rate at the target level. Substituting (A.6) and (A.7) into (A.4) and using (A.5), we rewrite (A.4) as

$$NX\left(\frac{P^*e}{P\left(e,\left(v+\frac{t}{1+\tau}\right)Y\right)}(1-v), C(Y(1-v)(1-t)), I(r(r_c),e); Y^*, \phi\right) + \overline{K} = 0 \qquad \text{(A.8)}$$

Note that in (A.8), following a ceteris paribus increase in *e*, both P^*e and *P* go up. Since production in India is highly import intensive, the increase in *P* is likely to be substantial. Hence, the increase in the real exchange rate will be quite small. For simplicity, we shall assume $\frac{P^*e}{P}$, which we denote by p, to be independent of *e* and a function only of (*v* +((1 – *v*) *t*)*Y*. We, therefore, rewrite (A.8) as follows:

$$NX\left(p\left((v+(1-v)t)Y\right)(1-v), C(Y(1-v)(1-t)), I(r(r_c),e); Y^*, \phi\right) + \overline{K} = 0 \qquad \text{(A.9)}$$

Determination of the Exchange Rate



We can solve (A.9) for *e* as a function of, among others, Y, t, v, ϕ and $\overline{K}$. Thus, we get

$$e = e\left(\underset{-}{Y}, \underset{-}{t}, \underset{+}{v}, \underset{-}{\phi}, \underset{-}{\overline{K}}\right) \qquad \text{(A.10)}$$

We can explain the partial derivatives of (A.10) using Figure A.1, where the equilibrium value of *e* corresponds to the point of intersection of the NX+K schedule representing the LHS of (A.9) and the horizontal axis. The NX+K schedule is upward sloping for the following reason. Following an increase in *e*, investment falls. This lowers import and, thereby, raises net export. Let us now examine how a ceteris paribus increase in *Y* is likely to affect the equilibrium value of *e*. Following a ceteris paribus given increase in *Y*, consumption demand will go up bringing about an increase in demand for imported consumption goods. Note that, given the very high degree of income inequality in India, most of the additional income will accrue to a small section of extremely rich people. Hence, most of the increase in consumption demand will represent additional demand for imported consumption goods bringing about a BOP deficit. The increase in *Y* will also produce an opposite effect. It will raise government revenue and expenditure and, thereby, will lower the AVC and *P*. The fall in *P* will raise net export. Since close substitutes of Indian goods are available everywhere, a fall in *P* is likely to substantially improve export performance and lower import, and, thereby, raise net export. We shall assume the latter effect to be stronger than the former, as it is more likely to be true. Even if we assume the opposite, our results will not be affected qualitatively. Therefore, given our assumption, following a ceteris paribus increase in *Y*, the NX+K schedule shifts upward in Figure A.1 bringing about a decrease in the equilibrium value of *e*. We shall explain the signs of the other partial derivatives later. Let us derive the value of e_Y. Taking total differential of (A.9) treating all variables other than *Y* and *e* to be fixed and solving for $\frac{de}{dY}$, we get

$$e_Y\left(\equiv \frac{de}{dY}\right) = \frac{\left[\left(-NX_c\right)C'\left(1-v\right)\left(1-t\right)\right] - \left[NX_{\bar{p}}\left(1-v\right)p'\left(v+\left(1-v\right)t\right)\right]}{\left(-NX_I\right)\left(-I_e\right)} < 0 \quad ;$$

$$\bar{p} \equiv p\left(1-v\right) \qquad \text{(A.11)}$$

Consider the expression on the RHS of (A.11). Focus on the numerator. We assume, as explained above, that the first term in the numerator is smaller than the second term.

Substituting (A.9) and (A.10) into (A.1), we rewrite it as follows:

$$Y = C\left(\left(1-t\right)\left(1-v\right)Y\right) + I\left(r\left(r_c\right), e\left(Y, t, v, \phi, \overline{K}\right)\right) + \left(t\left(1-v\right)+v\right)Y - \overline{K} \qquad \text{(A.12)}$$

The specification of our model is now complete. It contains two key equations (A.12) and (A.9) in two endogenous variables: Y and e. We can solve (A.12) for the equilibrium value of *Y*. Putting it in (A.9), we get the equilibrium value of *e*. We are now in a position to carry out the comparative static exercises.

A.3 Western Capitalists' Two Instruments for Controlling Indian Economy: $\overline{K}$ and ϕ

We shall examinehere how an increase in $\overline{K}$ and ϕ affectsthe economy. Let us focus on $\overline{K}$ first**.** Taking total differential of (A.12) treating all variables other than *Y* and $\overline{K}$ as fixed and, then, solving for *dY*, we get

$$dY = \frac{(I_e e_K - 1)d\overline{K}}{1-[C'(1-v)(1-t)+(t(1-v)+v)+I_e e_Y]} \quad \text{(A.13)}$$

We shall now derive the value of $I_e e_K$. Taking total differential of (A.9) treating all variables other than *e* and $\overline{K}$ as fixed and, then solving for $\frac{de}{d\overline{K}}$, we get

$$e_K\left(\equiv \frac{de}{d\overline{K}}\right) = \frac{1}{(-NX_I)I_e} \text{(A.14)}$$

Therefore,

$$I_e e_K = \frac{1}{(-NX_I)} > 1 \text{ since } 0 < -NX_I < 1 \text{(A.15)}$$

Note that $-NX_I$ measures the import intensity of investment (i.e., the amount of imported goods required per unit of investment). It is less than unity.

Substituting (A.15) into (A.13), we get

$$dY = \frac{\left(\frac{1}{(-NX_I)}-1\right)d\overline{K}}{1-[C'(1-v)(1-t)+(v+(1-v)t)+I_e e_Y]} > 0 \text{ (A.16)}$$

Let us now explain the expression on the RHS of (A.16). Following a given increase in $\overline{K}$ by $d\overline{K}$, there emerges an excess supply of foreign currency at the initial equilibrium $(e,Y)$of $d\overline{K}$. *e* begins to fall to clear the foreign currency market. To clear the foreign currency market, *e* has to fall by such an amount that the net export goes down by $d\overline{K}$ making $(NX+K)$zero again. As we have already mentioned, the impact of a fall in *e* on the real exchange rate is insignificant. It clears the foreign currency market mainly through its impact on investment. Investment rises and, since it is highly import intensive, raises import and, thereby, lowers net export. As per unit increase in *I* net export falls by $(-NX_I)$, *I* has to rise by $\frac{d\overline{K}}{-NX_I}$ to lower net export by $d\overline{K}$ and, thereby, restore BOP equilibrium. At the initial equilibrium *Y*, therefore, there emerges an excess demand for goods and services of $\left(\frac{1}{-NX_I}-1\right)d\overline{K}$, which is the numerator of the expression on the RHS of (A.16). This sets off a multiplier process. Since the economy's marginal propensity to consume out of *Y* (personal and public combined) is $C'(1-t)(1-v)+(v+(1-v)t)$, *Y* in the first round will go up by $dY_1 = \frac{\left(\frac{1}{-NX_I}-1\right)d\overline{K}}{1-[C'(1-t)(1-v)+((1-v)t+v)]}$. The increase in the consumption demand that

this increase in Y gives rise to will be partly spent on imported goods. Hence, at the initial equilibrium e, import demand will rise. On the other hand, the increase in Y in the first round raises government's tax revenue. This enables the government to raise its expenditure. This will increase the quantity and quality of government's services reducing the AVC. This, in turn, will lower the price level. Since close substitutes of Indian goods are available everywhere, the fall in the domestic price will substantially increase net export at the initial equilibrium e. In the net, given our assumption, net export will rise at the initial equilibrium e lowering e. e will fall by $e_Y dY_1$ and restore net export to its initial equilibrium value. However, the fall in e will raise I by $I_e e_Y dY_1$ creating an excess demand of the same value. The multiplier process will operate again and Y will increase in the second round by $dY_2 = \frac{I_e e_Y dY_1}{1-[C'(1-t)(1-v)+((1-v)t+v)]}$. Obviously, the process will not stop here. The increase in Y in the second round will again raise net export and lower e by $e_Y dY_2$ and, thereby, raise investment by $I_e e_Y dY_2$ setting off another multiplier process. Hence, in the third round, Y will go up by $dY_3 = \frac{I_e e_Y dY_2}{1-[C'(1-t)(1-v)+((1-v)t+v)]} = \left[\frac{I_e e_Y}{1-[C'(1-t)(1-v)+((1-v)t+v)]}\right]^2 dY_1$. This process of expansion will continue until the excess demand that is created in each successive round eventually falls to zero. Thus, the total increase in Y is given by

$$dY = dY_1 + \frac{I_e e_Y}{1-[C'(1-t)(1-v)+((1-v)t+v)]} dY_1 + \left[\frac{I_e e_Y}{1-[C'(1-t)(1-v)+((1-v)t+v)]}\right]^2 dY_1 + \ldots\ldots =$$

$$\frac{1-[C'(1-t)(1-v)+((1-v)t+v)]}{1-[C'(1-t)(1-v)+((1-v)t+v)]-I_e e_Y} dY_1 = \frac{\left(\frac{1}{-NX_I}-1\right)d\overline{K}}{1-[C'(1-t)(1-v)+((1-v)t+v)]-I_e e_Y} \quad \text{(A.17)}$$

It is clear that (A.17) tallies with (A.16).

Note that, even though it is not explicitly stated in many text books, the model presented above actually determines the growth rate of real GDP and the rate of inflation in the price level from one given short period (such as a quarter or a year) to the next. Let us explain. Equations (A.1) - (A.10) represent a given economy (which is India here) in a given short period of time. In the given short period, values of Y and P that prevailed in the previous short period are given and known. Therefore, determination of Y and P in the given period amounts to determination of the rate of growth of the real GDP and the rate of inflation from the previous period to the given period. From the above it is clear that, if in any given period, there takes place an increase in the net inflow of capital or net foreign investment, the rate of growth of real GDP from the previous period to the given period will increase.

Thus, the Western capitalists can create booms and recessions in Indian economy through their control over $\overline{K}$. In fact, from the data given in Table 9, we find that during 2003-04 to 2010-11, with the exception of the year 2008-09, India experienced unprecedented high rates of growth of GDP. The growth rate more than doubled from 2002-03 to 2003-04 and this very remarkable jump in India's growth rate can only be explained in terms of a substantial increase in the net inflow of capital (foreign investment). From 2002-03 to 2003-04, foreign investment more than trebled (see Table 9). All through the boom period, India received very large foreign investment. In fact, the dip in the growth rate in 2008-09 was also accompanied by a sharp fall in foreign investment (see Table 9). Thus, there is prima facie evidence that the Western capitalists created the boom in India during 2003-04 to 2010-11 by raising their investment in Indian assets very substantially. During the boom period mentioned above, India's average annual growth rate of GDP was around 8.5 percent. However, India went into a recession since 2011-12, when growth rate slumped to 6.5 percent. The growth rate dropped further in 2012-13 and 2013-14 when growth rates of GDP were 4.5 percent and 4.7 percent respectively (see Table 9). In both 2012-13 and 2013-14, the deep recession was on account of large drops in Western capitalists' investment in India (see Table 9). Let us first focus on the experiences in 2012-13. In February 2012, Government of India announced General Anti Avoidance Rule in the budget and also undertook Retrospective Amendment to Income Tax Law pertaining to indirect transfer of Indian assets. Both these measures aimed at restricting the scope for tax evasion on the part of foreign investors. This angered the Western capitalists. The global credit rating agencies downgraded India's credit rating and threatened to downgrade it further to junk status in April 2012. There took place a large fall in foreign investment. Exchange rate soared. This made both the domestic investors and the government extremely nervous. The growth rate plummeted to a low level in the first quarter of 2012-13. Hastily, to reassure the foreign investors, the GoI announced postponement of the implementation of the two measures mentioned above, removed the then Finance Minister, Pranab Mukherjee, who tabled the budget and announced the anti-foreign investor measures and brought in his place P.C. Chidambaram. The GoI also allowed foreign investment in retail and promised further relaxation of restrictions on foreign investment on that line in future. The GoI also brought about a steep hike in the administered price of diesel and cooking gas. Thus, the large fall in foreign investment and the nervousness it created together with, as we shall show later, the drastic cut in diesel subsidy were responsible for the deepening of recession in 2012-13. The deep recession in 2013-14 was also the handiwork of the Western capitalists. They spread the rumour that the Fed was going to hike its policy rate. This created a basis for expecting higher return from investments in US assets. As if using this rumour as an excuse, foreign investors cut down their investment in India substantially (see Table 9). Exchange rate increased sharply. In fact, between May and September 2013, exchange rate increased by 17 percent (see Table 10). As a result, investment and growth rate declined sharply perpetuating the recession. From the above it is clear that in the post-reform period, India is completely under the control of the Western capitalists. They create recessions and booms in India at will by changing their investment levels in Indian assets.

The Effect of an Increase in ϕ

We shall now examinehow an increase in ϕ for exogenous reasons affects India's growth rate. Taking total differential of (A.12) treating all variables other than *Y* and ϕ as fixed and, then,solving for *dY*, we get

$$dY = \frac{I_e e_\phi d\phi}{1-\left[C'(1-v)(1-t)+\left(v+(1-v)t\right)+I_e e_Y\right]} \quad \text{(A.18)}$$

Let us now derive the value of e_ϕ. Taking total differential of (A.9) treating all variables other than *e* and ϕ as fixed and, then, solving for $\frac{de}{d\phi}\left(\equiv e_\phi\right)$, we get

$$e_\phi = \frac{NX_\phi}{-NX_I I_e} \quad \text{(A.19)}$$

Substituting (A.19) into (A.18), we get

$$dY = \frac{\frac{NX_\phi d\phi}{-NX_I}}{1-\left[C'(1-v)(1-t)+\left(v+(1-v)t\right)+I_e e_Y\right]} > 0 \quad \text{(A.20)}$$

Let us explain the expression on the RHS of (A.20). Following an increase in ϕ by $d\phi$, net export rises by $NX_\phi d\phi$ at the initial equilibrium (Y,e) creating a BOP surplus. So, *e* will fall until net export falls to its initial equilibrium value. The fall in *e* will lower net export by raising investment. Net export will fall to its initial equilibrium value, when the decline in *e* raises investment by $\frac{NX_\phi d\phi}{-NX_I}$, which is the numerator. This sets off a multiplier process and *Y* goes up substantially by the expression on the RHS of (A.20). The multiplier process is similar to the one in the previous case.

The Western capitalists, therefore, can control India's growth rate through their control over India's exports. In fact, the unprecedented boom that India experienced during 2003-04 to 2010-11 came to an end since 2011-12. In 2011-12, the growth rate slumped to 6.5 percent from 8.5 percent. This large decline in the growth rate was due to a decline in the growth rate of export for exogenous reasons.

Proposition A.1: The Western capitalists can create large booms and recessions in India at their will by raising or lowering their investments in India and/or by purchasing more or less of India's produced goods and services. Available evidences lend prima facie support to the proposition that the unprecedented boom in India during 2003-04 – 2010-11 was on account of remarkable increases in foreign investment in India and the recession in 2011-12 was due to a large fall in the growth rate of India's exports. The perpetuation and deepening of recession in 2012-13 and 2013-14 were also on account of large falls in the level of foreign investment.

We cannot extend our analysis beyond 2013-14 because comparable data on growth rates are not available for the subsequent financial years.

A.4 Low Income Tax Rates: A Clever Ploy to Keep India Dependent

Despiteextreme 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 15). 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. Even then, India's income tax structure given by the data shown in Table 15, reveal an extremely unjust and unwise scenario. 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 marginal tax rate goes up by 5 percent for every additional annual income of Rs.2,50,000. However, individuals' income above Rs.15,00,000 is taxed at the rate 30 percent. Instead of raising income tax rates steeply for every additional Rs.2,50,000 of income, Government of India (GoI) has kept income tax rates unchanged for income levels in excess of Rs.15,00,000, it does not matter by how much the income level exceeds Rs.15,00,000. In what follows, we shall examine the implications of GoI's bounty towards the rich.

Taking total differential of (A.12) treating all variables other than *Y* and *t* as fixed and, then solving for *dY*, we get

$$dY = \frac{(I_e e_t + Y)dt}{1-[C'(1-v)(1-t)+(v+(1-v)t)+I_e e_Y]} \text{(A.21)}$$

We shall now derive the value of e_t. Taking total differential of (A.9) treating all variables other than *e* and *t* as fixed and, then, solving for $\frac{de}{dt}$, we get

$$e_t\left(\equiv\frac{de}{dt}\right)=\frac{-[NX_p p_G+(-NX_C)C'(1-v)]}{-NX_I(-I_e)}<0 \qquad \text{(A.22)}$$

Substituting (A.22) into (A.21), we get

$$dY=\frac{\left[\frac{NX_p p_G Y+(-NX_C)C'(1-v)Y}{-NX_I}+Y\right]dt}{1-1-[C'(1-v)(1-t)+(v+(1-v)t)+I_e e_Y]}<0 \qquad \because dt<0 \text{ (A.23)}$$

Let us now explain the expression on the RHS of (A.23). Following a reduction in the tax rate by*dt*, government's tax revenue at the initial equilibrium (Y,e) fallsby Ydt reducing government expenditure by the same amount. The decline in government consumption expenditure raises *P* and, thereby lowers net export by $NX_p p_G Ydt$. Again, the fall in income tax collection raises consumption expenditure by $-C'(1-v)Ydt$, which, in turn, by raising demand for imported consumption goods reduces net export by $(-NX_C)C'(1-v)Ydt$. Thus, at the initial equilibrium (Y,e), net export falls by $(-NX_C)C'(1-v)Ydt+NX_p p_G Ydt$ creating a BOP deficit. Hence, *e* will rise to raise net export to its initial equilibrium value. It will do so by lowering investment and it will fall by a multiple of the increase in net export. It will fall by $\frac{(-NX_C)C'(1-v)Ydt+NX_p p_G Ydt}{-NX_I}$. Government's consumption expenditure has

also fallen by *Ydt*. Thus, there emerges a large excess supply at the initial equilibrium *Y* given by the absolute value of the numerator of the expression on the RHS of (A.23). Hence, there will take place a cumulative contraction in *Y* through a multiplier process, which we have described in the previous cases.

From the above it follows that NEP by fixing income tax rates applicable to the rich, who have in their command about eighty percent of India's aggregate income and wealth, at minimum possible levels has reduced India's potential growth rate, the growth rate that India can sustain without depending upon the assistance of the Western capitalists, to a very low level. India, therefore, has to depend upon the bounties of the Western capitalists even to maintain a moderately high growth rate.

The above discussion yields the following proposition:

Proposition A.2: A cut in income tax rate in a country like India will bring about a substantial fall in the growth rate. The NEP, by fixing the income tax rate on the rich at the minimum possible level, has reduced its potential growth rate, defined as the growth rate that India can sustain without depending on the Western capitalists, to a very low level. Therefore, to sustain even moderately high growth rates, India has to depend upon the bounties of the global capitalists.

5.5 Dependence of GoI on Indirect Taxes under NEP: Deepening of Dependence on the Western Capitalists

Since under the NEP, the GoI has fixed income tax rates on the rich at the lowest possible level, it has to rely on indirect taxes as its main source of revenue. It has also undertaken in recent years sweeping reforms in the area of indirect taxes and has introduced in 2018 a single indirect tax called the Goods and Services Tax (GST) replacing almost all other indirect taxes. GST has been designed in such a manner that all the producers/sellers come under its purview it does not matter how small they are (see Banerjee and Prasad (2017)). Data recorded in Table 16 show that now the major part of tax revenue comes from indirect taxes, even though indirect taxes are highly unjust and regressive. In what follows we shall examine how a hike in the indirect tax rate is likely to affect India's growth rate.

Taking total differentialof (A.12) treating all variables other than *Y* and *v* as fixed and, then, solving for dY, we get

$$dY = \frac{\left[\{1 - C'(1-t)\}Y - (-I_e)e_v\right]dv}{1 - \left[C'(1-v)(1-t) + (v + (1-v)t) + I_e e_Y\right]} \quad \text{(A.24)}$$

We shall now derive the value of e_v. Taking total differential of (A.9) treating all variables other than *e* and *v* as fixed and, then, solving for $e_v\left(\equiv \frac{de}{dv}\right)$, we get

$$e_v = \frac{NX_p p - \left[NX_p\left(p_G(1-v)Y\right) + (-NX_C)C'(1-t)Y\right]}{-NX_I(-I_e)} > 0 \quad \text{(A.25)}$$

Let us focus on the sign of (A.25). Focus on the expression on the RHS of (A.25). Consider the numerator. Following a unit increase in *v*, domestic price rises. Since close substitutes of Indian goods are available everywhere, it will bring about a substantial fall in net export. The absolute value of the fall in net export is given by the term $NX_p p$. The unit increase in *v* will also tend to raise net export in two ways. First, it will lower consumption demand and, thereby, reduce demand for imported consumption goods. Hence, net export will go up by $(-NX_C)C'(1-t)Y$. Second, it will raise government's tax revenue and expenditure by *Y* and, thereby lower domestic price level for reasons we have already explained earlier. This will raise net export by $NX_p(p_G(1-v)Y)$. The sum of these two increases in net export is given by the term within third brackets in the numerator. However, the fall in net export on account oftheincrease in the domestic price level that the hike in the indirect tax rate directly gives rise to is highly likely to dominate by far the rise in net export on account of the two factors mentioned above. This contraction in net export is given by the first term in the numerator. The first term is likely to be much larger than the second term for the following reasons. First, the direct decrease in $p(1-v)$due to a unit increase in *v* is highly likely to be much larger than the fall in $p(1-v)$on account of the increase in*G* that the unit increase in *v* brings about. Second, since close substitutes of all the goods India produces are available everywhere, even a slight increase in the domestic price level relative to the foreign price is likely to bring about a very large fall in net export. For these reasons, a hike in the indirect tax rate is likely to reduce net export substantially at the initial equilibrium(Y,e). *e* will riseto restore net export to its initial equilibrium value. The numerator of the expression on the RHS of (A.25) gives increase in net export that is required to restore it to its initial equilibrium value. An increase in *e* will raise net export by lowering *I*. The denominator of the expression on the RHS of (A.25) gives the amount of increase in net export that a unit increase in *e* brings about.

The rise in *e* by e_v will lower*I* by $I_e e_v$, whose value is given by

$$I_e e_v = \frac{NX_p p - \left[NX_p(p_G(1-v)Y) + (-NX_C)C'(1-t)Y\right]}{NX_I} < 0 \qquad \text{(A.26)}$$

We are now in a position to explain (A.24). Focus on the expression on the RHS. Consider the numerator. Following an increase in *v* by *dv*, government's revenue and consumption expenditure at the initial equilibrium (Y,e) increasesby *Ydv* and personal consumption expenditure falls by $C'(1-t)Ydv$. In the net, therefore,public and personal consumption expenditure together increases by $(1-C'(1-t))Ydv$. As we have justdiscussed above, at the initial equilibrium(Y,e), net export goes down substantiallyraising *e* and, thereby, lowering *I* by $I_e e_v dv$, whose value is given by (A.26). The fall in *I* is likely to be much larger than the

rise in consumption demand. Thus, there is likely to emerge a large excess supply at the initial equilibrium *Y*. The absolute value of the numerator of the expression on the RHS of (A.24) gives the amount of this excess supply. This will set off a multiplier process and there will take place a cumulative contraction in *Y* through the multiplier process described earlier.

From the above it follows that, following a hike in the indirect tax rate it is highly likely that there will take place a large contraction in *Y*. We get prima facie evidence in support of this conjecture from India's experiences in 2012-13. In February 2012, as we have mentioned already, Government of India announced General Anti Avoidance Rule in the budget and also undertook Retrospective Amendment to Income Tax Law pertaining to indirect transfer of Indian assets. Both these measures aimed at restricting the scope for tax evasion on the part of foreign investors. This angered the Western capitalists. International credit rating agencies downgraded India's credit rating and there took place a large fall in the net capital inflow. Exchange rate soared. This made both the investors and the government extremely nervous. The growth rate plummeted to a low level in the first quarter of 2012-13. GoI hastily announced postponement of the implementation of both the measures. GoI, as we have already mentioned, also hiked the administered prices of diesel, cooking gas and kerosene to appease the foreign investors. These steps made the Western capitalists happy and net capital inflow again surged back to desired levels. Despite that, India's growth rate did not pick up. In fact, it slumped further in the third and fourth quarters. We attribute this to the steep hike in the administered price of diesel, which amounts to a drastic reduction in diesel subsidy or a hike in the net indirect tax rate (indirect tax rate net of the rate of subsidy). The fall in the growth rates in the third and fourth quarters supports our conjecture that a hike in the net indirect tax rate brings about a fall in the growth rate. The above discussion yields the following proposition:

Proposition A.3: Following a hike in the indirect tax rate in a country like India, there is a strong likelihood that the exchange rate will soar and the growth rate will decline substantially. Events that unfolded in India in 2012-13 lend prima facie support to this claim.

As NEP keeps income taxes on the rich at the minimum possible level, government has to rely on indirect taxes as the major source of tax revenue. However, hikes in indirect tax rates create inflation, BOP difficulties and cause a decline in the growth rate. The tax scenario described above subjects the Government to severe budget crunch. Since India does not have any independent knowledge or technological base, India's investment and production are highly import-intensive. As a result, domestic investors feel confident only when supply of foreign exchange becomes plentiful through large scale investments by the Western capitalists. This scenario makes India completely dependent on the bounties of the Western capitalists for sustaining even modest growth rates.

Some Reflections on International Trade, Openness and Growth[1]

Rajat Acharyya[2]

Abstract

Although the impact of international trade on growth of a country is debated among the economists and researchers since the times of Mercantilists in seventeenth- and eighs teenth-century Europe, another dimension of the debate has been that even when freer international trade promotes or augments growth, whether it is beneficial for the country or not. This is the beginning of the modern debate. I briefly review the different channels that are conceived in theories through which commodity trade and factor movement promote growth, as well as the theoretical discourses regarding the adverse effects that trade may have on growth in Section II. Welfare implications of growth in open economies are discussed in Section III. Section IV presents the mixed empirical evidences.

Key Words : International trade, Economic growth- Export-led &Import-led, Openness

JEL Classification Codes : : B27,F13, F11, F63,F14 ,Q27

I. Introduction

Impact of international trade on growth of a country is debated among the economists and researchers since the times of Mercantilists in seventeenth- and eighteenth-century Europe. Even with developments of new theories, innovation of new empirical techniques and availability of wider country experiences constituting a larger and systematic data set, the debate has not been resolved either in favour of international trade augmenting growth rates or against it. Setting aside the strong view of Hendrik and Lewer (2007) that the statistical evidence of trade adversely affecting economic growth is not convincing, country experiences regarding trade promoting growth seems to be at the best mixed. And, this is also true for the impact of trade policies, restrictive versus more liberal, on GDP growth.

There is another dimension of this debate, namely, even when freer international trade promotes or augments growth, whether it is beneficial for the country or not. This debate dates back to the Prebisch-Singer argument of secular deterioration of the terms of trade in the 1950s, followed by discourses on export pessimism, unequal exchange in the context of Centre-Periphery trade relations (Emmanuel, 1972), and immiserizing growth possibilities demonstrated by Bhagwati (1953), Johnson (1967) and Brecher and Alejandro (1977).

In this paper, I review these theoretical discourses as well as mixed empirical evidences and policy lessons that may emerge there from. The other important policy dimension that I touch upon here is the distributional consequences of growth and consequent conflict among different economic agents and interest groups that may make it difficult for a democratic government to adopt strong growth-augmenting policies.

The rest of the paper is organized as follows. I briefly review the different channels that are conceived in theories through which commodity trade and factor movement promote growth, as well as the theoretical discourses regarding the adverse effects that trade may have on growth in Section II. Welfare implications of growth in open economies are discussed in Section III. Section IV presents the mixed empirical evidences. Finally, I conclude the paper in Section V.

II. Theoretical Discourses on Commodity Trade, Factor Movement and Growth

International commodity trade and factor movement are conceived as the external sources of output growth of a country. And these work through a variety of channels. The role of international trade on growth can be best appreciated once we understand different constraints on growth that an economy may face. Aggregate output and growth may be constrained by supply-side factors like scarcity of labour, capital, raw materials and other natural resources like land. Poor technology also stands in the way of growth. It can also be constrained by low demand for domestically produced goods. Relative importance of these alternative factors, and consequent sources of growth, depends on which of these constraints are binding. For example, if aggregate demand is insufficient to buy goods that can be produced domestically by fully utilizing one or more resources or factors of production, be it land, or capital or even labour, then growth is constrained by insufficient demand. International trade will augment growth in such a demand-constrained economy if it can augment the demand for domestically produced goods. On the other hand, if aggregate production that exhausts availability of one or more resources is insufficient to cater to the aggregate demand for these goods, then trade can augment growth if it relaxes scarcity of resources or enables better and efficient utilization of scarce (and constraining) resources. In both these situations of demand constraints and supply constraints, international trade can have positive impacts on aggregate output and growth in several ways: through exports of commodities, which is the export-led growth (ELG); through imports of both final and intermediate goods, as well as capital (or skilled labour), which is the so-called import-led growth (ILG). Thus, an alternative categorization of different channels through which international trade in goods and factors may augment growth is to distinguish between ELG and ILG. It may also be noted that international trade augmenting innovations in a country and thus its product-growth rate can also take place through both ELG and ILG channels as we will elaborate upon later.

II.1 Export-led growth (ELG)

The earliest statement regarding ELG can be found in Adam Smith's (1776) vent for surplus productive capacity argument. In an economy where wages paid to workers in terms of food that they produce is low due to their low productivity, the opportunity cost of leisure is low. Thus, workers enjoy more leisure time and work for lesser hours. If this low-productivity-low-wage causes food prices to be lower, relative to the other goods that this economy produces, than in the rest of the world, then allowing export of food will increase the opportunity cost of leisure since higher food prices allow workers to buy larger quantities of other goods with the food-wage they receive. Thus, export of food results in an increase in labour effort (or time). This augments food production by utilizing both surplus land and surplus labour. Note that this is a supply-side argument and is relevant for an economy for which growth is constrained by labour voluntarily working less and enjoying leisure more.[3]

In contrast, Keynes (1936) and Kalecki's (1937) "net" exports enabling utilization of surplus (or, involuntarily unemployed) workers as well as excess productive capacity by augmenting effective demand is the ELG argument relevant for a demand-constrained economy. A country's exports are the demand by foreigners for domestically produced goods; and imports are what the domestic citizens spend on goods produced abroad. That is, whereas exports augment the demand for domestically produced goods, imports lower it. Hence, only a net exports or a trade-surplus raises the (effective) demand for domestically produced goods and thereby promotes growth. Two comments are warranted at this point. First, since a trade-surplus for one country means a trade-deficit for its trading partner, so by this Keynes-Kalecki argument, trade will augment output growth in one country and retard it in another.[4] That is, trade augmenting or retarding growth are both possible, and this may provide a theoretical support for mixed evidences on the relationship between trade and growth as we will see later. Second, this net-exports argument, and use of expenditure-switching trade policies like tariff (or, nominal devaluation of the exchange rate) that may achieve it, is similar to the idea to be found in the writings of Mercantilists: countries should maintain a trade surplus through export promotion and import protection since this will mean a net acquisition of precious metals.[5]

Contrary to these ELG arguments, the writings of Arthur Lewis, Rosenstein Rodan, Raul Prebisch, Hans Singer and Albert Hirschman echoed an export pessimism in 1950s

3. See Myint (1958) and Findlay (1970) for this interpretation of vent-for-surplus being a supply-side argument.

4. Contrary to this net-exports requirement for augmenting (effective) demand and consequently aggregate employment, Acharyya (1994) had shown that the same can be achieved through balanced trade in an economy with a capacity-constrained agriculture and two demand-constrained industries.

5. David Hume (1752) criticized this Mercantilist idea by arguing in terms of the price-specie flow mechanism that a trade surplus is only a temporary phenomenon. Essentially, this was one of the basic tenets of the Monetarist approach to balance of payments.

and 1960s, which grew out of the Prebisch-Singer hypothesis that primary-goods exporting poor countries will experience secular deterioration of their terms-of-trade (TOT) vis-à-vis the manufacturing-goods exporting rich nations. The rich nations generate the momentum of capital accumulation and innovation, with the poor nations relegated to perpetuating role of producers of primary goods and buyers of manufacturing goods. Thus, trade between rich and poor nations is essentially a Centre-Periphery relation. Such an export-pessimism got further momentum through two more influential writings. One is possibility of export-biased growth being immiserizing for a large country as such growth worsens its TOT (Bhagwati, 1953;[6] and the other is Emmanuel's (1972) hypothesis of unequal exchange or unequal distribution of gains from trade between developed and developing nations.

However, for ELG to work for a country, its export basket must be aligned with the import demand of its trading partners. In this context, Nurkse (1961) argued that one major reason for international trade not providing strong positive impact on growth is misalignment of export-supply with import-demand. A shift in industrial production in richer nations from light industries towards heavy industries (such as engineering and chemicals) in post WW II period caused a fall in demand for raw materials imported from the developing countries. Moreover, over the decades, the share of services in the total output of advanced industrial countries has been rising as well, which lowered import of raw material further.

The current debate regarding the ELG hypothesis pushes this demand-alignment argument further by emphasizing upon what is exported rather than how much is exported is what matters. Furthermore, the non-price dimensions of exports, such as export-quality, are becoming increasingly more important for strong ELG effects due to changing pattern of tastes towards such dimensions of goods that are consumed by the buyers in richer nations. A well-diversified export basket is also important for the ELG, since adverse world-demand shocks in one or two export products can be absorbed through exports of the wider range of other goods. I shall return to these dimensions of ELG in Section 4.

II.2 Import-led Growth (ILG)

Like Smith, Malthus also talked about international trade raising the opportunity cost of leisure and thereby promoting growth through larger work-effort. But his was inherently an import-led growth argument since it is the availability of a larger set of consumables through cheaper imports that makes workers to work for longer period to achieve the expanded set of consumables. On the other hand, Malthus, like Ricardo, was also concerned with diminishing returns in agriculture due to over-cultivation of the fixed amount of land

6. Johnson (1967) and Brecher and Alejandro (1977), on the other hand, demonstrated that growth may be immiserizing even for a small country as I shall elaborate later.

to feed a growing population. Both Malthus and Ricardo believed that due to this diminishing returns the industrialized countries would reach a point of stagnation much earlier than the resource rich primary goods exporting countries. In such a context, they viewed international trade releasing the pressure on agriculture by allowing cheaper food imports to feed a growing population. Not only this offsets diminishing returns in agriculture to some extent, but also releases other scarce resources from agriculture to be used in rest of the economy. Ricardo argued further that the real income gains from cheaper imports and efficient utilization of resources will step up the rate of profit and consequently the rate of capital formation, investment and growth. A similar argument has been put forward very recently by Irwin (2019): tariff reductions raise the transitional rate of growth, which is a function of the gap between the current level of GDP and its potential level, by raising the potential GDP through its (resource) efficiency effect.

The recent literature on ILG discusses better quality of imported capital goods, and larger variety of imported intermediate products augmenting growth. The New Growth Theories, with endogenous sources of growth, emphasize upon this particular channel of ILG hypothesis (Aghion and Howitt 1992; Romer 1987). These theories also emphasize upon technology diffusion and knowledge spillover from import of intermediate goods and foreign direct investment (FDI). For example, Grossman and Helpman (1991) argue that since intermediate products and capital equipments embody foreign technical know-how, so transmission of knowledge spillover across countries through import of such goods is an important channel through which growth is augmented.

On the other hand, Aizenman and Sushko (2011) argue that technologies and knowledge can be diffused from foreign parents to subsidiaries through FDI, which may in turn spill to other firms in the host country through labour mobility. Participation of a country in global value chains (GVC) also brings in substantial knowledge spillover. Moreover, GVCs provide opportunities for the developing countries to diversify their exports by specializing only in fragments of vertical stages of production according to their relative strengths and comparative advantages. This leads to more efficient allocation and utilization of scarce resources, and thereby promotes growth.

II.3 Trade, income distribution and growth

Keynes (1920), Kaldor (1957), and Kalecki (1937) viewed that since the marginal propensity to save increases with wealth, so growing income inequality in a country would augment its aggregate savings, capital accumulation, and hence its rate of output growth. The relevance of international trade in this context is that it redistributes income and thus changes wealth or income inequality within trading nations. By the well-known price magnification effect à la Jones (1965), freer international trade lowers the money wage and raises the rate of return to capital if exports are relatively capital intensive and im-

port-competing production is relatively labour intensive. Since capitalists usually have a higher marginal propensity to save than the wage earners, the aggregate savings of the economy rises as a consequence of this trade-induced redistribution of incomes, resulting in a higher rate of capital accumulation and output growth. But, its trading partner which imports relatively capital-intensive goods and exports relatively labour-intensive goods will experience a redistribution of incomes in favour of wage-earners, which in turn will lower its aggregate savings and consequently output growth. Thus, like the export-surplus argument, this trade-inequality-growth nexus will be different across countries having different factor-contents of their trade baskets. More precisely, since *usually* the labour-abundant developing countries export relatively labour-intensive goods, whereas the capital-abundant developed countries export relatively capital-intensive goods, so international trade will raise growth rates of the developed countries and lower growth rates of the developing countries through asymmetric income redistribution in these countries. [7]

Corden (1971), on the other hand, demonstrated that under constant returns to scale technology, the rate of growth in output is a weighted average of the rates of capital accumulation and the growth in labour force, with weights being the shares of national income of labour and capital. In this factor-weight approach, redistribution of incomes due to international trade alters these weights and thereby affects the rate of growth of output. But again, the trade-induced growth rates may be asymmetric across trading nations.

II.4 Trade, innovations and endogenous growth

Adam Smith's dynamic gains from trade is perhaps the foremost statement regarding trade and endogenous-growth nexus. He emphasized that substantial productivity gains can be achieved through division of labour as larger markets as a consequence of international trade enables large scale production. This productivity gain then translates into output growth in a low-labour-productivity economy. This Productivity Theory of Smith was the building bloc of Robertson's (1940) subsequent argument of trade as an engine of growth. Note that this productivity-augmenting argument of trade is essentially an ELG argument in contrast to the ILG channel that the New Growth Theories talk about.

In the New Growth Theories, innovation, particularly product innovation, is one of the important endogenous sources of growth of a country. So, another dimension of trade affecting growth relates to whether and how trade encourages innovation. This issue essentially takes us back to contrasting views of Schumpeter and Arrow regarding whether competition encourages or hinders innovation. Schumpeter (1942) was of the view that

7. Cross-country empirical evidences during the 1990s and thereafter reveal that the within-country wage-inequality among skilled and unskilled workers have increased almost universally across the globe (see Acharyya (2017), Marjit and Acharyya (2003)). In such a case of symmetric rise wage-inequality, we can expect growth rates to increase in both developing and developed countries alike.

large firms with market power accelerate the rate of innovation. This is similar to the more recent argument in favour of patent protection and TRIPS: a prospective innovator must have some market power to derive rents from its innovations to cover sunk costs; otherwise, she will be discouraged to innovate. Arrow (1962), on the other hand, was of the opinion that incentive of a monopolist to innovate is less than that of a competitive firm because larger profit encourages it to maintain status quo. Thus, product market competition has a positive impact on innovation. Subsequent theoretical analyses have remained equally inconclusive. Trade being pro-competitive, its role in augmenting innovation and thus product-growth rates can be put in the context of these polar opposite views. Note that this is essentially the ILG channel since the pro-competitive effects of trade arises from import competition.

An interesting theoretical analysis of Helpman (1993) deserves attention in this context. He demonstrated two interesting results while analyzing whether TRIPS (and patent protection in the South) encourages innovation in the North or not. First, trade between an innovating-North and an imitating-South steps up the rate of production innovation in the North. International trade creates scope for the South to imitate the innovated products, which once successful causes the innovator in the North to lose earning rents from the innovated product anymore. The firms in the North thus innovate at a faster pace to compensate the losses from their past innovations being imitated by firms in the South. Second result follows from the first. Implementation of TRIPS or patent protection in the South lowers the chance of an innovation being imitated, and so raises the expected profits from existing innovations to be reaped during the life of the patent. This lowers the incentives for new innovations since innovations are not costless. This argument of trade, imitation and product-growth rates can be thought as an ELG channel.

III. Welfare Consequences of Growth in an Open Economy

In a supply-constrained economy, growth in labour force or domestic capital accumulation expands the set of output levels and thus increases the aggregate value of production or real income. There is thus a real income or welfare gain from such factor-growth. In an open economy, this real-income or welfare gain from growth is not certain. First, not all types of growth are welfare-improving. For example, as demonstrated by Bhagwati (1953), if growth is export-sector-biased, and thereby raises the county's exports, and the country is large in the world market, then the price of its exports fall causing real income losses. If this secondary real income (or welfare) losses outweigh the initial real income gains due to an expanded set of production, the large open economy's overall welfare actually falls below the pre-growth level. Thus, export-biased growth may be immiserizing. Essentially, in a closed economy benefits of lower prices due to growth would have accrued to the domestic consumers, and accordingly there would have been only a redistribution of incomes (or, surplus) from domestic producers to domestic consumers

without reducing the overall welfare of the economy. But, in a large open economy such benefits of lower prices are exported away to the foreign consumers.[8] Thus, the nature of growth is important for welfare-gains from growth to be realized in an open economy.

Second, even if the growing economy is *small in the world market*, and thus a price-taker there, growth may reduce welfare. Suppose, it's imports from the rest of the world are restricted through tariffs, which allow its inefficient domestic import-competing sector to survive the foreign competition. But, this protection of inefficient domestic sectors causes the country's real income to fall. That is, import tariffs in a small open economy generate distortions or dead-weight losses. Now, if factor-growth is such as to augment these inefficient import-competing sectors, then volume of imports falls. That is, cheaper foreign goods are substituted further by high-priced import-competing goods produced by the inefficient domestic firms. Consequently, distortions or dead-weight losses from their operations increase as well. Hence, even for an open economy that is small in the world market and thus cannot affect its TOT, growth may be immiserizing (Johnson, 1967). Similar immiserization possibility was also demonstrated by Brecher and Alejandro (1977) in the context of foreign capital inflow-led growth of a small open economy. If foreign capital inflow lowers the volume of imports then growth reduces welfare of the host-country.

Note that whether factor-growth is immiserizing or not depends on *the source of growth* – whether it is labour-force growth, capital accumulation or foreign capital inflow – *as well as on the trade pattern*. For example, domestic capital accumulation (or, foreign capital inflow) will be export-biased if the open economy under consideration is exporting relatively capital intensive goods. If this economy is large then Bhagwati's immiserizing possibility arises. But, a labour-force growth in such an economy is not export-biased and thus growth caused by it will not be immiserizing. On the other hand, the Johnson (1967) or Brecher-Alejandro (1977) cases arise when domestic capital accumulation (or, foreign capital inflow) occurs in a small economy which imports capital intensive goods under tariffs. In sum, the nature and source of growth in an open economy are both important for realization of welfare-gains from growth.

IV. Empirical Evidence

There is a voluminous empirical literature examining the relationship between international trade and growth. One set of studies estimate the impact of increased trade or trade

8. Similar in spirit, Emmanuel (1972) postulated an *unequal exchange* between a North and a South. Low prices of imports from the South (or, Periphery), due to undervaluation of labour and consequent low wages there, contribute to the high standard of living in the North (or, the Centre). That is, international trade essentially transfers value from the Periphery to the Centre.

openness – measured both in terms of a country's total value of trade as a percentage of its GDP, as well as indices taking into account tariffs, non-tariff barriers and exchange rate policies of a country. Another set of studies estimate trade policy impacts on output growth of countries. There are also the studies that test specifically the ELG and ILG hypotheses (see Balassa 1985; Ram 1987; Awokuse 2007; Mishra *et al*. 2010; Shahbaz *et al*. 2011; Veeramani 2014; Marjit, Basu and Veeramani, 2019). However, all these empirical studies, employing a wide range of estimation strategy, time period, country coverage and control variables, provide evidences on both sides of the coin. Thus, overall, no definitive conclusions can be reached either in favour of trade promoting growth or against it.

While Frankel and Romer (1999) and Sachs and Warner (1995) among the earlier studies find that openness is positively correlated with more rapid growth, Harrison (1996) and Rodriguez and Rodrik (2000) show that the robustness of such correlation *declines* as other variables, such as property rights, are included in the empirical analysis. In an interesting study, Dollar and Kraay (2004) observed that the developing countries which were globalizing after 1980 were catching up with rich countries during the 1990s, whereas non-globalizing developing countries continued to lag further behind. Thus, they concluded in favour of the positive impact of trade openness on growth. A similar result has been established by Aizenman, Lee and Park (2012): With globalization and liberal trade policies, structural change in developing economies has increased productivity and helped them to catch up with advanced economies. However, in a cross-country study of 61 countries, Kim (2011) finds that greater trade openness promote economic growth for the developed countries, but not for the developing countries.

A few detailed analysis of ELG suggest two important factors for its stronger effects: the diversification of export baskets, and the nature and composition of export baskets. For example, Rodrik (2006) and Hausman et al. (2007) argue that the issue at hand is not whether exports promote growth, but *how* exports promote growth. Their empirical analysis, and subsequently the observations by Bayudan-Dacuycuy and Lim (2014) and Pinat and Didier (2013), suggest that economies that export high-quality, high-technology intensive and sophisticated products have a stronger ELG effects than others. On the other hand, studies by Hallak (2006), Imbriani, Morone, and Testa (2013), Johnson (2012), Manova and Zhang (2012) and Tian et al. (2016) provide strong evidences that product-quality is an important determinant of export performances of developing countries. This quality dimension of export-led growth creates a divide between rich and poor nations as they specialize at the two ends of the quality-spectrum (Acharyya and Ganguly, 2023). Regarding the impact of export diversification, a few cross-country studies have observed a non-monotonic relationship with growth, which may imply that developing countries mostly benefit from diversification (see Hesse, 2008, Agosin, 2007; Gozgor and Can, 2016). Henn et al. (2013) also conclude that the developing countries that al-

ready have relatively higher average export quality may benefit from diversifying into sectors with opportunity for quality upgrading still existing.

Among many studies that test the ILG hypothesis, of late, a cross-country study by Marjit, Basu and Veeramani (2019) covering 174 countries shows that import of intermediate and capital goods results in a statistically significant real per-capita income growth. On the other hand, similar to the idea of productivity and sophistication of export-basket of a country as developed in Hausmann et al. (2007), Veeramani (2014) constructs an index to measure the level of knowledge embodied in a country's import basket of capital goods using the data for the period 1995-2005. He then shows that a higher initial value of this index will enable a country to grow faster. Thus, *what a country imports also matters*.

The Indian experience regarding ELG is studied among others by Dash (2009). He found a long run relationship among export and output, and unidirectional causality from export to economic growth during 1991 to 2007. Marelli *et al*. (2011) also observe positive impact of trade openness on economic growth in India (as well as in China). Hye and Lau (2015), however, demonstrate that trade openness positively impacts economic growth in the short run but negatively in the long run during 1971-2009.

There are lots of studies estimating trade openness and growth in African countries with somewhat mixed evidences as well. Chang and Mendy (2012) find a significant positive relationship between trade openness and economic growth in sub-Saharan Africa. But, the study by Zahonogo (2017) for 42 sub-Saharan Africa countries during 1980 to 2012, reveals that trade openness has beneficial effects on economic growth below a trade threshold, while above this threshold the effects tend to decline.

Evidences on trade policy effects on growth are also mixed and inconclusive. Using both tariff and non-tariff barriers, Wacziarg (2001) examined the link between trade policy and GDP growth for 57 countries. He concludes that reduction of trade barriers raise GDP growth. However, Estevadeordal and Taylor (2013) argue that not all types of tariff reductions promote growth. Comparing liberalizing and non-liberalizing countries in two long periods, 1990–2004 and 1975–1989 by a difference-in-difference regression method, they find a country's potential growth is augmented more through a reduction in tariffs on capital and intermediate goods than a reduction of tariff on final consumption goods. Goldberg et al. (2010) also observe that more new products are introduced by those industries that experienced largest decline in input tariffs. Lower input tariffs accounted for a third of the observed increase in firms' product scope. There had also been a positive impact on total factor productivity and research and development spending for such industries. On the other hand, contrary to the conventional view that trade barriers are distortive and detrimental to growth, Rodriguez and Rodrik (2000) have found that the average tariff growth rates positively affect the total factor productivity growth (TFP)

for the sample of 46 countries over the 1980–1990 period. Studying trade policy impacts for a large sample of both developing and developed countries, Yanikkaya (2003) also argues that trade restrictions in the form of tariffs, as well as trade related taxes, can promote growth. At the same time, his findings suggest that the relationship between trade openness and growth depends on the level of development and the size of the economy.

Empirical studies on trade, innovations and growth include Romer (1989), Kind (2002) and Hye and Lau (2015). Using the data of 90 developing countries, Romer(1989) demonstrates that trade openness promotes a wider range of innovations. But, combining elements of New Trade Theory and endogenous growth models into his empirical strategy, Kind (2002) argues that effects of trade liberalization on economic growth are ambiguous for different countries due to differences in size of their home markets. Moreover, trade liberalization can reduce the R&D incentive in low purchasing power countries as compared to high purchasing power countries.

V. Conclusion

Whether and how international trade augments output growth of an open economy is debated in theory. Empirical evidences put forward by researchers during the last four decades also have not resolved the debate once and for all. Whereas the trade and growth theories provide a wide range of channels through which trade may promote growth, empirical estimates of such relationships have thrown up mixed evidences. In this paper, I have reviewed the theoretical discourses on this relationship and documented some of the significant empirical studies. Welfare implications of growth in open economies are also discussed.

References:

Acharyya, R. 1994. "Principle of Effective Demand and the Vent for Surplus Approach to Trade". Journal of Post Keynesian Economics, 16(3): 439-451.

Acharyya, R., (2017), "International Trade and Widening Wage Gap: A General Equilibrium Approach". In: Bandyopadhyay, S., A. Torre, P. Casaca, and T. P. Dentinho (eds.), Regional Cooperation in South Asia: Socio-economic, Spatial, Ecological and Institutional Aspects, Chapter 2, Springer.

Acharyya, R. ands. Ganguly. 2023. Export Quality and Income Distribution. Cambridge Elements Series on International Economics. Series Editor: Kenneth Reinert. UK: Cambridge University Press.

Aghion, P. and P. Howitt. 1992. "A Model of Growth Through Creative Destruction". *Econometrica*, 60(2), 323-351.

Agosin, M.R. 2007. "Export Diversification and Growth in Emerging Economies". Working Paper No. 233, Department of Economics, University of Chile.

Aizenman, J. , M. Lee, and D. Park. 2012. "The Relationship between Structural Change and Inequality: A Conceptual Overview with Special Reference to Developing Asia". ADBI Working Paper No. 396. doi.org/10.2139/ssrn.2175383.

Aizenman, J. and V. Sushko. 2011. Capital Flow Types, External Financing Needs, and Industrial Growth: 99 countries, 1991-2007. NBER Working Paper 17228.

Arrow, K. 1962. "Economic Welfare and the Allocation of Resources to Invention." In: The Rate and Direction of Inventive Activity: Economic and Social Factors, edited by the Universities-National Bureau Committee for Economic Research and the Committee on Economic Growth of the Social Science Research Councils, 609– 26. Princeton, NJ: Princeton University Press.

Awokuse, T. O. 2007. Causality between exports, imports, and economic growth: evidence from transition economies, *Economics Letters* 94(3): 389–395.

Balassa, B. 1985. Exports, policy choices, and economic growth in developing countries after the 1973 oil shock, *Journal of Development Economics* 4(1): 23–35.

Bayudan-Dacuycuy, C. & Lim, J. A. 2014. "Chronic and Transient Poverty and Vulnerability to Poverty in the Philippines: Evidence Using a Simple Spells Approach". Social Indicators Research, 118(1).

Bhagwati, J.N. 1953. "Immiserizing Growth: A Geometric Note". Review of Economic Studies, 25: 201-205.

Brambilla I. & Porto, G. (2016). High-income export destinations, quality and wages. Journal of International Economics, 98(C), 21-35.

Brambilla, I., Lederman, D. & Porto, G. (2012). Exports, Export Destinations, and Skills. American Economic Review, 102(7), December.

Brambilla, I., Lederman, D. & Porto, G. (2014). Exporting Firms, Quality and the Demand for Skilled Tasks. Mimeo.

Brecher, R., and Alejandro, C. D. 1977. "Tariffs, Foreign Capital and Immiserizing Growth". Journal of International Economics, 7: 3017-3022.

Chang, C. C. and Mendy, M. 2012. "Economic Growth and Openness in Africa: What is the Empirical Relationship?" *Applied Economics Letters*, 19(18): 1903-1907.

Corden, M. 1971. *The Theory of Protection*. Oxford: Clarendon Press.

Dash, R. K. 2009. "Revisited export-led growth hypothesis: an empirical study on India". *South Asia Economic Journal* 10(2): 305–324. http://dx.doi.org/10.1177/139156140901000203

Dollar, D. and A. Kraay. 2004. "Trade, Growth, and Poverty". *Economic Journal,* 114 (493): F22–49, 02.

Emmanuel, 1972 Emmanuel, A. (1972), 'Unequal Exchange: A Study of the Imperialism of Trade', Translation by B. Pearce. New York & London: Monthly Review Press.

Estevadeordal, A. and A. M. Taylor. 2013. "Is the Washington Consensus Dead? Growth, Openness, and the Great Liberalization, 1970s–2000s". *Review of Economics and Statistics* 95: 1669–90.

Findlay, R. 1970. International Trade and Development Theory. Columbia: Columbia University Press.

Frankel, J. A., and D. Romer. 1999. "Does Trade Cause Growth?" *American Economic Review* 89: 379–99.

Goldberg, P., A. Khandelwal, N. Pavcnik, and P. Topalova. 2010. "Imported Intermediate Inputs and Domestic Product Growth: Evidence from India". *Quarterly Journal of Economics* 125: 1727–67.

Gozgor, G. and M. Can. 2016. "Effects of the product diversification of exports on income at different stages of economic development". Eurasian Business Review, 6(2): 215-235.

Grossman, G. M. and E. Helpman. 1991. *Innovation and growth in the global economy*. Boston: MIT Press.

Hallak, J. C., (2006), "Product quality and the direction of trade", Journal of International Economics, 68(1), 238-265.

Harrison A. 1996. "Openness and growth: A time-series, cross-country analysis for developing countries". Journal of Development Economics, 48(2):419-447. DOI: 10.3386/w5221

Hausmann, R., J. Hwang, and D. Rodrik. 2007. "What you export matters". Journal of Economic Growth, 12(1), 1–25.

Helpman, E. 199). "Innovation, Imitation, and Intellectual Property Rights". *Econometrica*, 61: 1247–80.

Hendrik, V. and Lewer, J. 2007. "*Trade and Growth: The Empirical Evidence*". In: Hendrik, V. and Lewer, J. (eds), *International Trade and Economic Growth (*Chapter 2). New York: Routledge.

Henn, C., Papageorgiou, C. & Spatafora, N. 2013. "Export Quality in Developing Countries". IMF Working Paper 13/108.

Hesse, H. 2008. "Export Diversification and Economic Growth". Working Paper No 21. Commission of Growth and Development available online at www.growthcommision .org

Hume, D. 1752. *Political Discourses.* Edinburgh: A. Kincaid and A. Donaldson.

Hye, Q.M.A. and W-Y Lau. 2015. "Trade openness and economic growth: Empirical evidence from India". Journal of Business Economics and Management, 16(1): 188–205.

Imbriani, C., P. Morone, and G. Testa. 2013. "Innovation, Quality and Exports: The Case of Italian SMEs." *The Journal of International Trade & Economic Development* 23 (8): 1089–1111.

Irwin, D.A. 2019. "Does Trade Reform Promote Economic Growth? A Review of Recent Evidence". Working Paper # 19-9. Peterson Institute for International Economics, Washington DC.

Johnson, H.G. 1967. "Economic expansion and international trade. Manchester School of Economic and Social Studies, 23: 95-112.

Johnson, R. C. (2012). Trade and prices with heterogeneous firms. Journal of International Economics, 86(1), 43-56.

Jones, R. W. 1965. "The Structure of Simple General Equilibrium Models". Journal of Political Economy, 73: 557-72.

Kaldor, N. 1957. "A model of economic growth". The Economic Journal. 67 (263): 591-624.

Kalecki, M. 1937. "The Problem of Effective Demand with Tugan Baranovski and Rosa Luxemburg". Reprinted in: M. Kalecki (1971): Selected Essays on the Dynamics of Capitalist Economy. Cambridge University Press, Cambridge.

Keynes, J.M. 1920. The Economic Consequences of the Peace. London: Macmillan.

Keynes, J.M. 1936. The General Theory of Employment, Interest and Money. London: Macmillan.

Kim, D.-H. 2011. "Trade, growth and income". *The Journal of International Trade & Economic Development,* 20(5): 677–709.

Kind, H. J. 2002. "Endogenous growth and trade liberalization between small and large countries". *Review of International Economics* 10(1): 151–165.

Manova, K. and Z. Zhang. 2012. "Export prices across firms and destinations", Quarterly Journal of Economics 127(1), 379-436.

Marelli, E., and Signorelli, M. 2011. "China and India: openness, trade and effects on economic Growth". *The European Journal of Comparative Economics,* 8(1): 129–154.

Marjit, S. and R. Acharyya. 2003. "International Trade, Wage Inequality and the Developing Countries: A General Equilibrium Approach", Heidelberg: Physica/Springer Verlag.

Marjit, S., A. Basu, and C. Veeramani. 2019. "Growth Gains from Trade". CESifo Working Paper No. 7905, CESifo, Munich.

Mishra, V., Sharma, S. S. and Smyth, R. 2010. "Is economic development in the pacific island countries export-led or import-led?". *Pacific Economic Bulletin* 25: 46–63.

Myint, H. 1958. "The Classical Theory of International Trade and the Underdeveloped Countries". *The Economic Journal*, 68(270): 317–37.

Nurkse, R. 1961. *Problems of Capital Formation in Underdeveloped Countries*, New York: Oxford University Press.

Pinat, M., and Didier, T. 2013. "*How Does Trade Cause Growth?"* In: Global Trade Analysis Project. Purdue University, West Lafayette,

Ram, R. 1987. Exports and economic growth in developing countries: evidence from time-series and cross-section data, *Economic Development and Cultural Change* 36(1): 51–63. http://dx.doi.org/10.1086/451636

Robertson, D. 1940. *Essays in Monetary Theory*. London: P.S. King & Son.

Rodrik, D. 2006. "What's So Special about China's Exports? China and the Global Economy 2010". China Economic Research and Advisory Program, 14(5).

Rodríguez, F., and D. Rodrik. 2000. "Trade Policy and Growth: A Skeptic's Guide to the Cross-National Evidence". *NBER Macroeconomic Annual 2000*. Cambridge, MA: MIT Press.

Romer, P. M. 1989. "Growth based on increasing returns due to specialization". *American Economic Review* 77: 56–62.

Sachs, J.D., and A. Warner. 1995. "Economic Reform and the Process of Global Integration". *Brookings Papers on Economic Activity* 1: 1–118.

Schumpeter, J, 1942, Capitalism, Socialism and Democracy. New York: Harper.

Shahbaz, M.; Azim, P.; Ahmad, K. 2011. Exports-led growth hypothesis in Pakistan: further evidence, *Asian Economic and Financial Review* 1(3): 182–197.

Tian, D., Hu, N., Wang, X. and Huang, L. 2016. "Trade margins, quality upgrading, and China's agri-food export growth", China Agricultural Economic Review, Vol. 8 No. 2.

Veeramani, C. 2014. "World's Knowledge Spillovers: Beyond Openness and Growth". Journal of Economic Integration, 29(2): 298-328.

Wacziarg, R. 2001. "Measuring the dynamic gains from trade". *The World Bank Economic Review* 15(1): 393–429.

Yanikkaya, H. 2003. "Trade openness and economic growth: A cross country empirical investigation". Journal of Development Economics, 72(1): 57-89. DOI: 10.1016/S0304-3878 (03)00068-3)

Zahonogo, P. 2017. "Trade and Economic Growth in Developing Countries: Evidence from Sub-Saharan Africa". *Journal of African Trade*, 3(1-2), 41-56.

Artha Beekshan, Volume 32, No. 1 & 2, June and September 2023.

Education, Skills and Employment in India: Some Stylized and Not-So-Stylized Facts[1]

Jandhyala B G Tilak[2]

Abstract:

After describing the theoretical relationships between education and employment/ unemployment, the paper reviews the empirical evidence on India and presents a few stylized and not-so-stylized facts on the changing relationship between education and employment/unemployment. Recognising the importance of quality education and skills to improve the employability of graduates and thereby ease the unemployment problem, the paper comments on the reforms required in the higher education system in India. It also reviews in this context some of the key proposals made in the National Education Policy 2020.

Key words: Education, Education policy, Education system, Employment, Human capital theory, Jobless growth, NSSO, Skills

JEL Code: A2, A23, J6, J24, J88

> "The outsiders want the students trained for the first job out of college, and the academics inside the system want the student educated for fifty years of self-fulfillment. The trouble is the students want both"(Harlan Cleveland, 1975, p. 6).

I. Education and Employment/Unemployment

> "Of the 13 million people who join India's workforce each year, only one in four management professionals, one in five engineers, and one in ten graduates are employable" (attributed to a report of the World Economic Forum).
>
> "85% of engineering graduates not immediately employable" (Sudha Murthy 2022).*The Hindu* 2 May 2022).

---

1. Keynote address delivered in the 43rd Annual National Conference of the *Bangiya Arthaniti Parishad* (West Bengal Economic Association), held in Kolkata (18-19 March 2023)

2. Former Professor & Vice-Chancellor, National University of Educational Planning and Administration, and presently Distinguished Professor, Council for Social Development, and Visiting Professor, Kautilya School of Public Policy. Email: jtilak2017@gmail.com

Such statements are often found in public media in recent years, casting doubts, rather serious questions on the quality of graduates that the Indian higher education institutions produce, implying that the higher education sector is responsible – rather solely responsible – for graduate unemployment in the economy. It is widely held that the current graduate labour market situation is characterized by (a) gluts in the labour market -- excess supply of university graduates, causing open and disguised unemployment, and mismatches, and at the same time (b) shortages of skilled manpower. How far is the education system responsible for this?

There are three alternative prominent perspectives on the relationship between education and unemployment/employment:

1. Education and employment/unemployment are not related. Education is independent of employment. The objective of education is not creation or generation of employment/unemployment. It has completely a different function. It transmits knowledge, imparts skills, and transforms children and youth into human beings and citizens of noble character and values that can be cherished. 'Employability' – marketability and salability of its graduates is considered as degrading the nobility of education. Unemployment is certainly not a function of the amount of schooling or type of schooling of the labor force (Carnoy, 1977). In support of such an argument, it is cited that after all, the world depression of the 1920s, or the recession of the 1970s and the 1980s, and the accompanying unemployment cannot be meaningfully related to growth in education.Similarly, the recent large-scale layoffs globally in the information & technology sector and the resulting unemployment have little to do with higher education. If there is a simple, positive, and direct effect of education on unemployment, one expects economies with more educated population to suffer from higher rates of unemployment, which is not the case. Thus, according to some, education and unemployment (or employment) are not at all related.

2. A more widely held argument is that education and unemployment are strongly related. The human capital theory underlines the strong relationship between education and the economy, its growth, development, income distribution, inequalities, social and human development at the macro level, and to individual productivity, employment, and earnings at the individual level. Educated employment/unemployment, by its very definition, is closely related to education, besides the state of the labour market. The main purpose of education is to make people employable and make them suitable for employment in the labour market. After all, people acquire education – particularly higher education with an objective to get good employment and decent wages. Education is related to employment at least in three major ways: (a) Education increases the volume of employment, as education it-

self is a labour- intensive activity; it creates demand for more goods and services, and it imparts attitudes manual, mechanical, technical or soft skills for paid or self-employment and there by to promote production activities in the economy. (b) Education causes unemployment, by producing 'unemployable' graduates with higher aspirations, which can not be satisfied by the labor market. Education systems may produce surplus of graduates that the economy can not absorb. A highly subsidized education system, it is argued results in increase in demand for higher education and correspondingly an increase in output of the education system (Ilchman, 1969). (c) Education converts underemployment into open unemployment, by making people to leave traditional and rural communities and work activities, and scramble for a limited number of urban modern sector jobs (see Blaug, 1973). There are quite a few empirical studies on all these aspects, in many countries including India.

3. The third view recognizes the above two. Education may not be directly related to employment or unemployment; but its effects on labour market are significant, resulting in more employment/unemployment, causing sometimes significant changes in the very nature of employment. Education influences and is influenced by employment and other labour market conditions. Unemployment is not primarily an educational problem; but education can be a part of the solution (Levin, 1983). Education serves multiple functions, including provision of manpower to-the economy. Education produces and disseminates knowledge through teaching and research, produces skilled manpower, scientists, technocrats, engineers, and alsopoliticians, thinkers, visionaries, statesmen, and global citizensby inculcating values, attitudes, etc., in them.Such people may eventually be usefully employed or may remain outside the employment market. Education imparts knowledge and general as well as specific skills. Provision of specific skills is normally considered as the function of training programmes, while provision of general knowledge and generic skills is the function of higher education (Becker, 1962, 1975; see also Tilak, 1992). General skills include those skills, which are generally believed to be more important than specific skills; the latter would be useful only to a particular industry and specific jobs, while general or soft skills are portable across different sectors of employment and are useful to adjust to different conditions, even face market disequilibria and to restore equilibrium. While some skills such as general skills may complement general education, specific skills may substitute general education. Hazelwood (1989, p. 100) argues that if training which impartsskills substitutes education, it will reduce income inequalities in the workforce; and instead if skills complement education it will tend to increase inequalities. Hence a careful mix has to be adopted. Nowadays the distinction between education and

skill-focused training seems to be vanishing. On the whole provision of manpower to labour market is considered an important function, along with education serving as an end in itself as the human development specialists and education philosophers argue.

I agree with the third perspective that education performs both roles; but I also strongly feel the need for a proper balance of the two. Graduate or educated employment/unemployment is closely related to education, besides to the stateof the economy including the nature and the functioning of the labor market-deficiencies in the nature and growth of higher education, and in the nature and growth of the economy, etc. Educated unemployment reflects inefficient allocation of human capital in the economy and wastage of human and other economic resources. If there is underinvestment in education, the size of the educated workforce would be small and the economy might face shortage of skilled manpower. On the other hand, if the educational system produces numbers more than required, there would be glut in the labor market resulting in unemployment of the educated.Thus, lack of coordination betweeneducational planning and economic planning in general, andemployment planning in particular, could result in educatedun employment. While it is thus clear that education and employment/unemployment are mutually related, the way they are related is not very clear.

Ironically when education-employment relations are not necessarily strong, it appears that the relationship between education and unemployment is relatively very strong. In economies characterized by massive unemployment, education may reduce the present level of unemployment by adding to the enrollments in colleges the numbers that would have otherwise added to the stock of unemployed. But in the process, with better and more knowledge and skills, graduates increase the probability of getting employment in the near future. Thus, unemployment in society at large, in turn, may result in higher demand for education. In short, while the education system and the labor market in an economy are closely related, as Psacharopoulos (1981) observes, whether education increases unemployment or reduces is not unequivocally clear, and is a matter of debate, and empirical verification.

The above three statements are true and untrue as well. For the same reason, these statements are sometimes termed as ‘shibboleths’, ‘platitudes’, and ‘common assumptions’. Some of them have been subjected to empirical verification and some not. We have robust evidence on some and some still remain as hypotheses, if not assumptions.

Three kinds of empirical relationship between education and unemployment could be identified (Blaug, 1973): (a) a negative relationship -- more education appears to improve chances of employment, (b) a positive relationship -- more education causing over supply of graduates results in more and more people unemployed, and (c) an inverted U-shaped

relationship, suggesting that the rate of unemployment increases by increasing educational level up to a point, reaching a peak at a given level, and then declining with further increase in educational levels. More commonly, type (c), i.e., an inverted U-shaped relationship between education and unemployment is derived in empirical studies. But we also often note a positive relationship (b) described above.

Based on some of the recent empirical evidence on India, a few facts are highlighted in the following section, some of which could be regarded as 'stylized' facts that have been supported by empirical evidence, and some not so stylized, requiring deeper investigation. I also raise a few perplexing paradoxes that require further research. In Section 3, I concentrate on education and skills, and how the policies and approaches therein address the issue of educated unemployment in India. A few concluding observations are made in the last section.

II. Some Stylized and Not-So-Stylized Facts

Educated unemployment is an important problem in India and it is assuming high proportions. Based on some of the recent evidence on educated unemployment in India, drawn mostly from National Sample Surveys (NSSO) and recent annual Periodic Labour Force Surveys (PLFS), one can make the following observations on the size and pattern of unemployment.

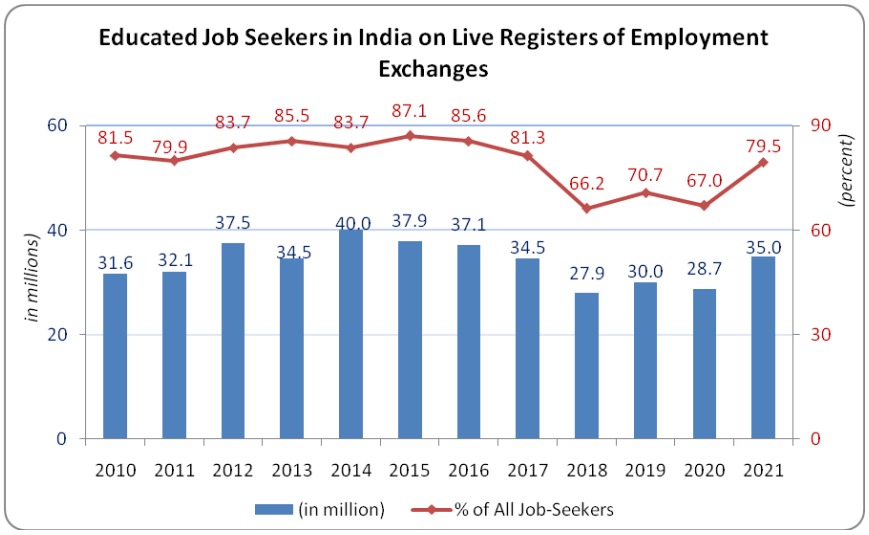
Educated Unemployment

First, the Directorate General of Employment (DGE) of the Ministry of Labour and Employment, Government of India provides detailed time-series data on the number of unemployed people in the country. According to the employment exchange statistics (DGE, 2022), there were 35 million educated[3] job-seekers on the live registers of employment exchanges in 2021. This marks a marginal increase of 3.4 million in about a decade – from 31.6 million in 2010. However, the trend is not smooth: the figure touched 40 million in 2014; then gradually declined to 28 million by 2018, and then rose to 35 million by 2021 (Figure 1). The educated job seekers in 2021 constitute nearly 80 percent of the total number of job seekers. This proportion was also at its peak in 2015 at 87 percent, and was the least in the COVID year--2020! These trends cannot be meaningfully explained.

Among all the educated job seekers in 2021, those who completed secondary/higher secondary education constitute the maximum: 69 percent. Higher education graduates constituted 23 percent of the total educated job seekers. Figure 2 gives a more detailed breakup of the educated unemployed, which shows that the postgraduates constitute only seven percent; so are the diploma/certificate holders. This confirms the inverted U-shaped relationship between education and unemployment.

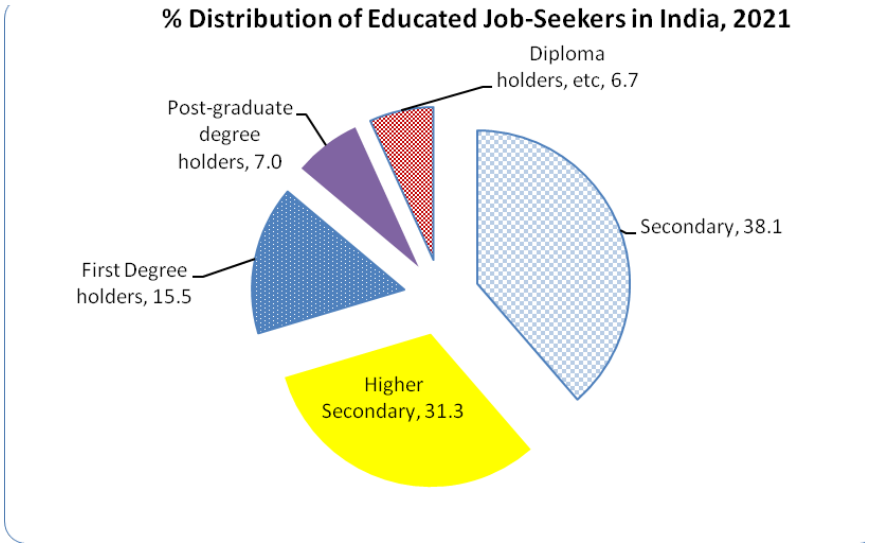
3. 'Educated' includes secondary/matriculate and above levels of education

Figure 1



Source: *Employment Exchange Statistics 2022* (Directorate General of Employment, New Delhi, Government of India, New Delhi, 2022).

Figure 2



Source: DGE (2022).

The data provided by the employment exchanges are generally regarded to be unreliable. Instead, the data provided by NSSO and PLFS surveys are normally considered fairly reliable and authentic. In the rest of the paper I rely on the same.[4]

Second, the overall rate of unemployment in India over the last several decades has been low, hovering at around five percent; but this rate has increased to 7-8 percent in recent years, and according to NSSO (2019-20) this came down to 5.8 percent in 2019-20 (and 4.2 percent in 2020-21 according to the PLFS surveys), which is of course much lower than the rate of unemployment in many large developed economies (Sharma, 2022). But the rate of unemployment among the youth (age-group 20-24) has been high -- above 20 percent for several years, reaching 28 percent in 2020-21[5]; and the unemployment among the educatedis also very high, around 25 percent – ranging from eight percent among the below secondary educated and 36-39 percent among the higher educated, as shown later. Thus the rate of educated unemployment is higher than not only the rate of overall unemployment, i.e., unemployment among the total population, but also much higher than corresponding rates in developed countries.

The educated unemployed in India form alarming numbers and constitute a very high proportion of the total unemployed in India. This is similar to the evidence provided by the DGE data. This proportion, the educated unemployment as a proportion of total unemployment is rising over the years – from 37 percent in 1983 to 66 percent among all – 75 percent among women in 2019-20 (Table 1). While the overall unemployment rate remains low, unemployment among youth and workers with secondary and tertiary education poses a big challenge.

Table 1

Unemployed Educated Youth as % of Total Unemployed

	All	Male	Female
1983-	37.3	36.0	42.2
1993-94	55.1	54.1	58.1
2011-12	55.8	54.1	59.4
2019-20	66.0	63.3	74.8

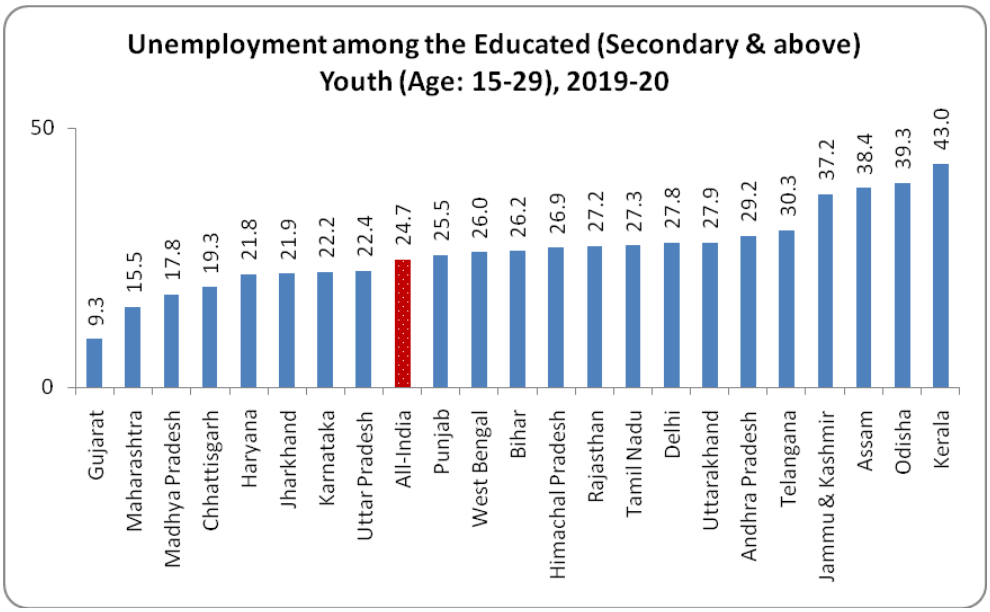
Source: Sharma (2022) based on NSSO (relevant rounds).

4. Many unemployed people do not necessarily register in the exchanges. It is generally observed that employment exchange is the last place an educated job-seeker will go with a hope to get a job. Accordingly, we find big differences between DGE data and the data available from NSS and PLFS. NSS also provides more details on the same problem. With respect to some aspects, both provide similar, but not same estimates.

5. .https://www.theglobaleconomy.com/India/Youth_unemployment/

The rate of educated unemployment among the youth (age: 15-29) in India in 2019-20 was 25 percent, which is higher than in many other countries. In a majority of states, the unemployment rate is quite high – much higher than the national average. Kerala experiences the highest rate of unemployment (Figure 3). The rate of educated unemployment varies between 9.3 percent in Gujarat and 43 percent in Kerala. Analysing NSSO data on unemployment, Bairagya (2015) highlighted an important aspect: developed states have higher levels of educated unemployment; they are followed by underdeveloped states; and developing states figure in the middle. Not only in terms of overall economic development, even when industrialisation is considered, it has been found surprisingly that highly industrialised states have higher levels of unemployment, than less industrialised states! The kind of industrialisation that is taking place in these states is probably more physical capital-intensive and less human capital-intensive. Human capital is substituted by technology-based physical capital.

Figure 3



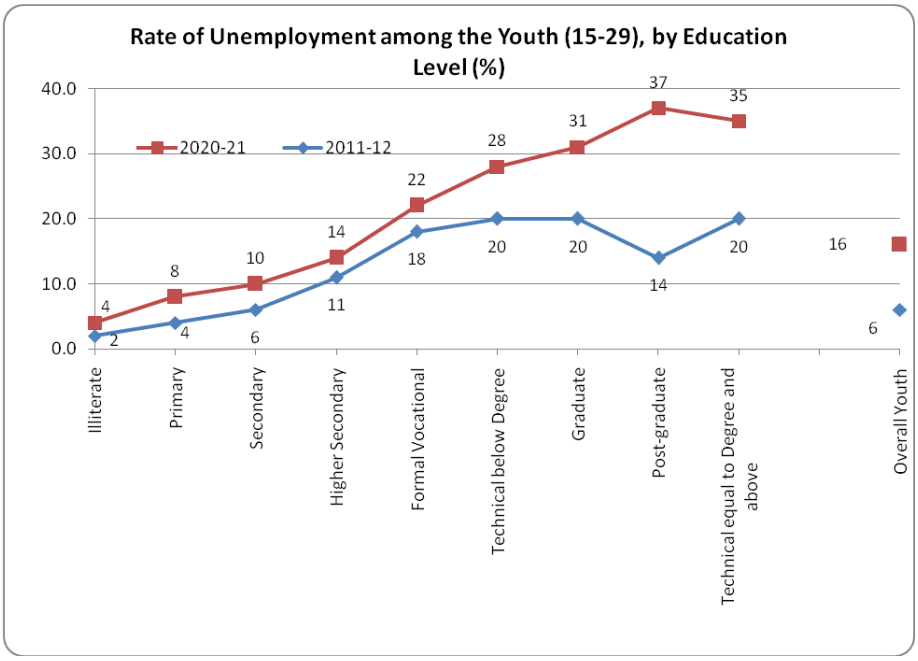
Source: Alakh Sharma (2022) (based on NSSO 2019-20).

Third, for a long period, the relationship between the level of education and the rate of unemployment was depicted by an inverted 'U'-shaped curve in many developing countries (Blaug, 1973), the rate increasing with every level of education, reaching the peak level at the secondary level of education, and then declining as one moves to higher education. Accordingly, unemployment was regarded mostly as a problem of uneducated and/or less educated. But over the years, the rate of unemployment seems to be rising

along with every level of education, the rate being higher at every successive higher level of education – the highest level of education having the highest level of unemployment. As Varghese (1989) summed up, the problem of unemployment was mostly a problem of matriculates in the 1950s, the undergraduates in the 1970s, and the postgraduates of universities who joined the pool of unemployed in large numbers in later decades. The same trend is shown in Figure 4, unemployment as a rising function of education. The peak in educated unemployment has now shifted from secondary to higher education. The illiterates face the least unemployment, and post-graduates face the highest: 37 percent: 35 percent of the graduates in technical education are unemployed in 2020-21. The unemployment rates among graduates and above are much higher than those with secondary and above education both in rural and urban areas. Even those who acquired formal vocational education face higher employment than general secondary and higher secondary graduates.

That the unemployment rate is the highest among higher educated graduates, including graduates of technical education should indeed be a matter of serious concern, as it also reflects a huge wastage of human and economic resources invested in higher education both at individual and societal levels, besides its leading to youth disillusionment and associated social unrest.

Figure 4



Source: Mehrotra (2023) (based on PFLS)

For a long period, it was widely felt that a major benefit of education was the lower risk of unemployment at higher educational levels (Mincer, 1991). Accordingly, it has been widely felt that higher education is the passport to employment and technical or professional degree is of higher value in labour market, both in ensuring jobs and high wages. But this is no more the case in India.

It is generally understood that unemployment among the youth involves a sort of 'waiting period' before they find a niche in productive activities in the economy. Unemployment is confined generally to initial periods after graduation. The waiting period used to range between six and 24 months – the median value being around 12-14 months for higher educated 1980s (UNESCAP, 1987), but it has of late become of uncertain length (Ghose, 2019). Some studies have reported that the waiting period decreases with increasing levels of education; but over the years waiting period itself has become longer, resulting in an upward shift in the rate of unemployment.

Fourth, an issue of more important concern is the rise in the rate of unemployment among persons with every level of education between 2011-12 and 2020-21 (Figure 4): among illiterates it increased from 2.2 percent to 4 percent, for youth having secondary education from 6 percent to 10 percent, and from 11 percent among those with higher secondary education to 14 percent. Even among the degree holders in general education, it increased by 11 points from 20 percent to 31 percent and among the people with technical education below degree[6] from 20 percent to 33.4 percent. Moreover, for the degree graduates with technical education, the rate increased to as high as 35 percent from 20 percent in 2011-12. The overall incidence of educated unemployment more than doubled between 2011-12 and 2017-18 from 7.6 percent to 16.6 percent.

Paradoxically, as the economy is growing, the rate of unemployment is also growing. Rates of educated unemployment are high and they are rising in a period when higher education as well as the economy are growing and employment opportunities are believed to be rising. As many observed, India's, world-beating growth, is not creating enough jobs (Beniwal, 2022). The high growth path has not resulted in productive job creation. As Kathuria and Krishnan (2022, p. 26) explain, "India's structural transformation has not conformed to custom. The stage of industrialization in which a country experiences employment-intensive growth driven by manufacturing has been bypassed in favour of services-led growth." (see also Basu &Veeramani, 2022). This results in jobless growth. After all, service sector, which is less labour-intensive, cannot absorb teaming millions. The fast-growing software industry accounts for just a few million jobs. Ghose (2023) describes this as 'exclusive growth' characterised by employment in skill-intensive ser-

6. 'Technical education below degree level' includes diploma/certificate holders in vocational and technical education (normally after secondary/higher secondary level).

vices. Even in the manufacturing sector, which used to be highly labour-intensive, capital intensity has increased overall. Yet it may be the only lifeline to reap the demographic dividend, as Subbarao (2023) observes. Even though technology has the potential to increase the demand for skilled manpower, and thereby employment (Vashisht & Dubey, 2022), it has not helped the employment situation in India. Automation in industrial production has further added to 'jobless growth' a phrase that UNDP (1996) coined, along with 'ruthless growth', 'voiceless growth', 'rootless growth', and 'futureless growth.' So, some may rightly argue that this kind of jobless and exclusive growth may not be sustainable in the long run.

Table 2

Gender Gap in Youth Unemployment among the Youth (Age-group: 15-29), by Educational Level

	2011-12				*2019-20*			
	All	*Male*	*Female*	*Gender gap (Female-Male)*	*All*	*Male*	*Female*	*Gender gap (Female-Male)*
Illiterate	2.2	2.6	1.4	-1.2	5.5	7.8	0.7	-7.1
Below Secondary	4.5	4.5	4.1	-0.4	8.0	8.9	4.4	-4.5
Secondary/ Higher Secondary	10.3	8.7	18.7	10.0	16.9	16.9	16.7	-0.2
Technical below Degree	27.3	22.1	41.2	19.1	33.4	29.6	40.7	11.1
Degree&above	22.1	19.3	29.9	10.6	35.7	33.8	40.3	6.5
Technical Degree Graduate	20.8	19.6	23.4	3.8	39.1	37.5	41.7	4.2
Total	7.6	6.9	10.0	3.1	16.6	16.3	17.6	1.3

Source: Based on Sharma (2022) (based on NSSO and PLFS).

Fifth, there are wide differences in rates of unemployment by gender: women face higher rates of unemployment at every level of post-secondary education, i.e., among graduates of secondary and above in 2011-12 and among degree graduates, technical degree graduates, and diploma holders in 2019-20. However, the gap seems to have marginally declined in favour of women over the years between 2011-12 and 2019-20 among the graduates of secondary and above. In the case of school leavers, in addition to illiterates, unemployment rates are higher among men than among women, as the figures in Table 2 indicate.

Sixth, the technical degree holders -- both men and women face higher rates of unemployment in 2019-20, but women face marginally a higher rate of unemployment. Unemployment is higher among the graduates in technical education than among the graduates of general higher education in 2019-20, while the situation was reverse in 2011-12. Graduates of technical education below degree level also had higher rates of unemployment in 2011-12, -- higher than general higher education graduates and even higher secondary graduates; but by 2019-20, the situation changed; and the technical diploma holders experience higher rates of unemployment than higher secondary education completers; they have only a marginal advantage over degree graduates and above. That the unemployment rates among those with technical education below degree (i.e., diploma or certificate levels) are also high, raises questions on the quality and relevance of training programmes offered by our technical institutions and other skill-imparting public and private institutions, which were estimated to be above 2 million (NCAER, 2018).

Employment of the Educated

Seventh, somewhat paradoxically while we find increasing rates of unemployment by educational level, we also notice increasing rates of employment[7] with every educational level, as shown in Table 3. All higher secondary and above levels are grouped into one category in this table. 'Secondary and above' conceals a lot; 'Graduate and above' is a better classification; but classification further taking 'Post-graduate and above' does not necessarily reveal much, as the difference between the rate of unemployment among the 'graduates and above' and 'post-graduates and above' was found to be small, but post graduates do fare worse than graduates with marginally higher rates of unemployment (see Khare, 2020).

7. Employment is measured in terms of usual principal and subsidiary status.

Table 3

Employment Rate (%) by Educational Level*

	1999	*2004*	*2011*	*2018*
Not Literate	62.2	59.7	55.2	45.3
Primary	67.5	67.2	64.2	57.8
Secondary	67.3	67.4	64.8	58.8
Higher Secondary and above	69.2	69.6	65.4	58.0

* with respect to non-student population

Source: Ghose& Kumar (2021) (based on NSSO).

Subject to this limitation, we note that the employment rate increases with increasing levels of education, though the marginal differences are not significant. At the same time, it needs to be underlined that the overall employment rate has been declining over the years among persons of every level of education.

Eighth, who are employed and in which occupational sector? Most of the graduates of degree and above education are employed in regular formal sector. The second most important preferred sector is self-employment. Higher education is widely perceived to be not for self-employment, nor it is for blue collar jobs; it is for formal organized sector – public or private, for domestic and foreign markets. But we note from Table 4 that more than one-third of the graduates are self-employed in 1999 and also in 2018. Half the higher secondary graduates get engaged in self-employment. Nearly half of every category of educated people (and illiterates), except degree and graduates and above, are engaged in self-employment only; sizeable secondary and below educated people end up in casual employment. However, among the higher educated, as already noted sizeable numbers get into regular sector, and also a good proportion into regular informal sector. After all , the nature of job market is also changing. Formal sector also provide informal employment to Ghose and Kumar (2021) have also shown that employment of the educated has been coming done over the years in all sectors – regular, casual or self-employment.Not only in absolute terms of millions of employees, increasingly smaller and smaller numbers of graduates are getting employed, but also the rate of employment of the educated declined steeply from 4.6 percent during 1999-2004 to 2.8 percent per annum during 2011-18

Table 4

Distribution of Educated People by Sector of Employment										
	1999					*2018*				
	Regular Formal	*Regular Informal*	*Self*	*Casual*	*Total*	*Regular Formal*	*Regular Informal*	*Self*	*Casual*	*Total*
Illiterate	1.2	2.9	50.7	45.2	100	0.9	6.8	55.0	37.3	100
Below Primary	3.3	6.3	53.5	36.9	100	1.8	9.6	53.7	34.9	100
Primary	4.3	8.3	56.2	31.3	100	2.4	13.1	53.1	31.4	100
Middle	6.4	11.4	57.4	24.8	100	4.8	15.7	54.9	24.6	100
Secondary	17.7	14.8	53.6	14.0	100	8.8	17.5	56.0	17.7	100
Higher Secondary	26.5	14.7	51.8	7.1	100	18.9	20.4	50.5	10.2	100
Degree & above	45.2	14.6	38.8	1.4	100	40.8	20.9	36.1	2.1	100
Total	7.7	7.4	52.2	32.8	100	9.7	14.1	52.0	24.2	100

Source: Based on Ghose& Kumar (2021) (based on NSSO).

.

Ninth, most of the workers in the casual sector are illiterate, followed by primary and middle school completers. Regular formal sector employs more graduates, followed by higher secondary school leavers. As increasingly more graduates are produced by the higher education system, all sectors seem to employ more and more graduates, as the numbers in Table 5 make it clear. In 2018 higher proportions of graduates are employed in regular formal, regular informal, self-employment, and casual sectors -- in the same order than in 1999. That even in casual employment, and regular informal employment also the more and more educated people get engaged, can be regarded as the working of the phenomenon of 'bumping down' -- low-skilled jobs being offered to high-skilled workers, and workers with lower skills get bumped out. When higher qualified graduates are available, employers unnecessarily upgrade hiring standards, a phenomenon more familiarly known as escalation of qualifications or devaluation of degrees, which itself is a consequence of large-scale educated unemployment.

Table 5

Type of Employment among the Educated: Sectoral Distribution of Employment										
	1999					*2018*				
	Regular Formal	*Regular Informal*	*Self*	*Casual*	*Total*	*Regular Formal*	*Regular Informal*	*Self*	*Casual*	*Total*
Illiterate	7.1	17.3	42.7	60.7	44.0	2.3	11.7	25.7	37.5	24.3
Below Primary	4.8	9.5	11.4	12.6	11.2	1.1	4.0	6.1	8.6	5.9
Primary	6.5	13.1	12.5	11.1	11.7	3.4	12.8	14.2	18.0	13.9
Middle	11.6	21.6	15.3	10.5	13.9	10.6	23.6	22.5	21.6	21.3
Secondary	21.1	18.4	9.4	3.9	9.2	11.1	15.0	13.0	8.8	12.1
Higher Secondary	15.3	8.8	4.4	1.0	4.4	20.1	14.8	10.0	4.3	10.3
Degree & above	33.7	11.3	4.2	0.2	5.7	51.5	18.1	8.5	1.1	12.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Based on Ghose& Kumar (2021) (based on NSSO).

This kind of 'under employment' that is employing a graduate in a job that requires a qualification below the given level is generally increasing rapidly at every level of education. In the process, employers substitute less educated people with higher educated people for the same job. This substitution, or the 'bumping down' mechanism works against secondary school products more than against graduates, and between first degree and second degree holders, works against first degree holders. The phenomenon that qualifications for a given job tend to rise over time, independent of the nature of work, is empirically well attested in several countries and in several situtations.

If one compares the situation with 1999 (Table 6), in 2018 more and more primary and above categories of educated people got employment; and illiterates and below primary are shunted out. Secondly, in every sector, a higher proportion of higher educated graduates and those with higher secondary were employed in 2018 than in 1999. This includes somewhat surprisingly agriculture as well as non-agricultural sectors, the latter including manufacturing, construction, and service sectors. Secondly, in every sector illiterates and those with below primary education constitute smaller proportions in 2018 than in 1999,

suggesting the working of something like the bumping down principle, and /or that the educational profile of the workforce is rapidly changing in every sector.

Table 6

Employment by Sector and Educational Level (%)

	Economy		*Agriculture*		*Non-Agriculture*		*Manufacture*		*Construction*		*Services*	
	1999	*2018*	*1999*	*2018*	*1999*	*2018*	*1999*	*2018*	*1999*	*2018*	*1999*	*2018*
Illiterate	44.0	24.3	56.9	37.5	24.5	14.5	28.9	14.0	41.3	27.8	19.2	9.9
Below Primary	11.2	5.9	11.4	7.2	10.8	5.0	12.8	5.7	14.0	7.2	9.2	3.8
Primary	11.7	13.9	11.0	15.1	12.6	13.0	14.9	15.6	15.1	18.3	11.2	9.9
Middle	13.9	21.3	11.4	19.8	17.6	22.4	18.1	25.6	16.3	26.0	17.7	19.9
Secondary	9.2	12.1	5.7	10.0	14.4	13.7	12.5	14.9	7.6	11.2	16.4	14.2
Higher Secondary	4.4	10.3	2.3	6.6	7.6	13.0	6.0	14.0	2.9	6.3	9.3	14.9
Degree &above	5.7	12.2	1.3	3.7	12.5	18.4	6.7	10.2	2.9	3.1	17.0	27.3
Total	100	100	100	100	100	100	100	100	100	100	100	100

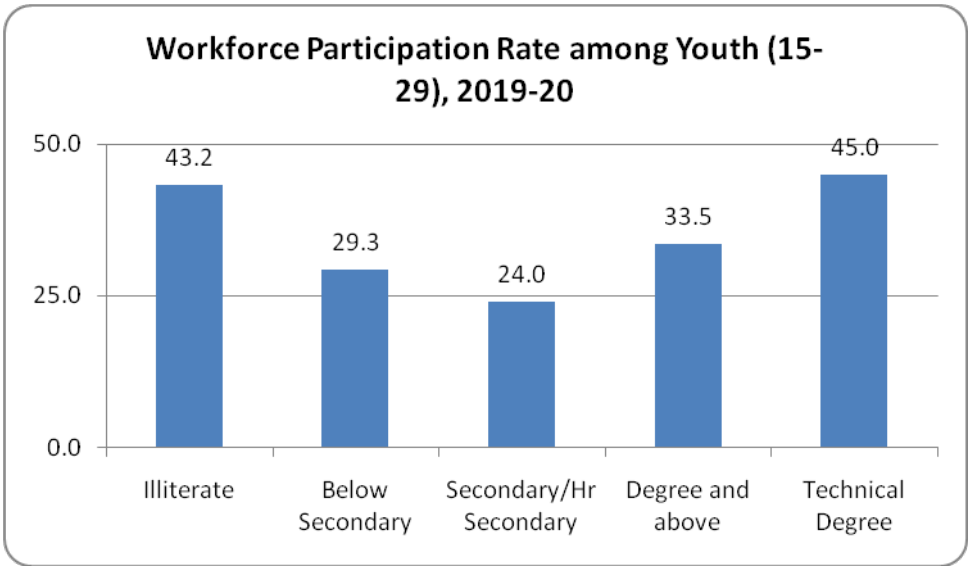
Source: Based on Ghose& Kumar (2021) (based on NSSO).

Tenth, the concentration of educated workers. In the agricultural sector, illiterates dominate other educated people, constituting 38 percent of all workers in agriculture in 2018. In the construction sector also we find a similar pattern. In the non-agricultural sectors, people with middle education and above form high proportions of the total employees. This pattern is well known. The service sector is not necessarily composed of only higher educated workers; it employs good proportions of people with other categories of education, including illiterates and those with below primary education.

Participation of the Educated in Workforce

Many researchers have highlighted that the declining labour force participation is along term trend and that educated unemployment and workforce participation are related (e.g., Madheswaran & Parida 2022). Rates of workforce participation are the highest among general graduates, being further higher in the case of technical graduates. However, surprisingly only one-third of the graduates and a little below 50 percent of the technical graduates enter the workforce, meaning that more than 50 percent of the graduates do not join the workforce! (Figure 5).

Figure 5

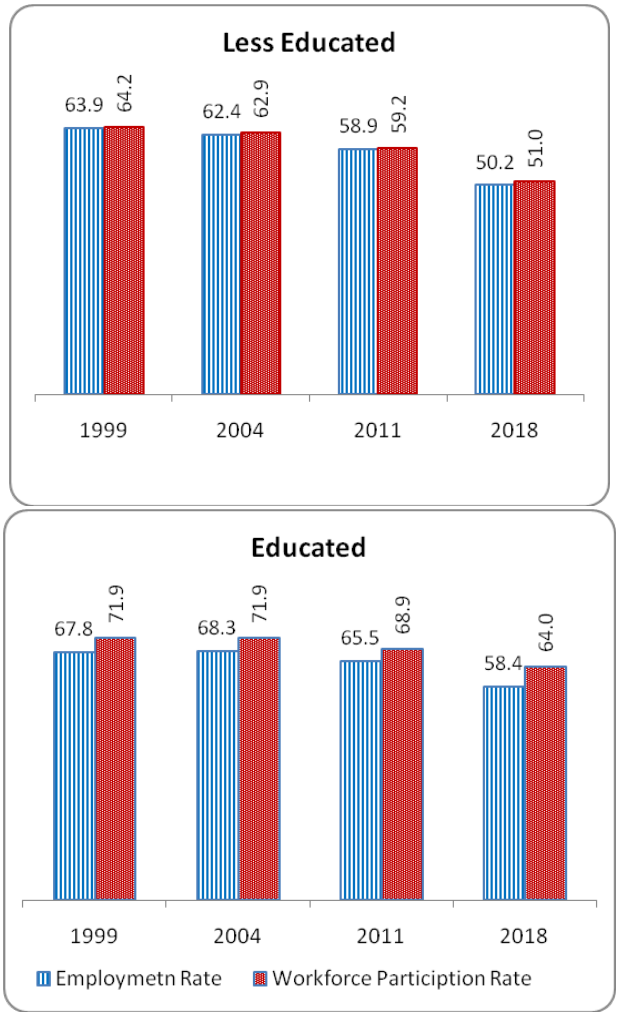


Source: Sharma (2022) (based on NSSO).

Among the higher educated, workforce participation seems to be rising, while in the case of those with primary education, it declined between 1999-2000 and 2011-12 (Shaw, 2013). As well known, the problem is more severe in the case of women.

Figure 6

Employment and Workforce Participation (%)



Source: Ghose and Kumar (2021) (based on NSSO).

As Surbhi Ghai (2018) has shown, 65-88 percent of women go out of the labour force after the age of 18; the rates marginally differ by level of education, the rates being relatively low among the graduates and above (65 percent) (2015-16). Overall female labour force participation rate in India is not only low compared even to other South Asian countries. But also it is declining.

Lastly, as shown in Figure 6, workforce participation rate and employment rate are very closely related – both among the less educated and educated workers. The workforce participation rate came down from 72 percent among the educated in 1999 to 64 percent; and rate of employment declined from 68 percent to 58 percent during the same period. The trend as well as the relationship is quite consistent.

III. Why there is a High Rate of Graduate Unemployment? Searching Solutions in Education and Skills

One can identify a set of factors that may provide some explanation for the rise in graduate unemployment, which are essentially around education and skills on the one hand and the economy on the other. The rate of growth of the economy, lack of its diversification, market rigidities and imperfections, market disequilibria, and information asymmetry or misinformation may explain one side of the problem. Here I concentrate on education and skills. After all, it is often argued that the prevailing labour market indications -- low employability of graduates coupled with an abysmal record of job placement are the reflections of the poor quality of education in the country. The quality attributes in terms of, *inter alia*, skills and knowledge, and also the character and values with which the graduates come out of the education institutions determine the employability of graduates. After all, employability is a measure of human capital – skills and knowledge, embodied in the graduates, which is valued in the labour market for productive employment.

Unplanned Growth of Higher Education

There has been rapid growth in the supply of higher education, particularly since the beginning of the 1990s. While between 1970-71 and 1990-91, the number of universities and colleges doubled, between 1990-91 and 2020-21 the same increased by six times, the colleges by 6.6 times, and the student enrollments increased nine-fold (Table 7). Presently about ten million graduates come out of the system every year (and 11 million students complete higher secondary education, some of whom go into higher education and a majority enter labour force.) The unplanned and unregulated growth in higher education is not clearly related to economic growth, giving an impression that the higher education system produces more graduates than what the system can absorb, resulting in high rates of unemployment, or produces graduates with skills that do not match with requirements, resulting in open unemployment, under employment or mal-employment. Expansion of higher education seems to have happened at the cost of quality.

Table 7

Growth in Higher Education in India

	Universities	*Colleges*	*Enrollment (millions)*	*Gross Enrollment Ratio (%)*
1950-51	27	578	0.2	1.0
1970-71	93	3,277	2.0	3.9
1990-91	183	6,627	4.4	6.0
2020-21	1,113	43,796	41.3	27.3

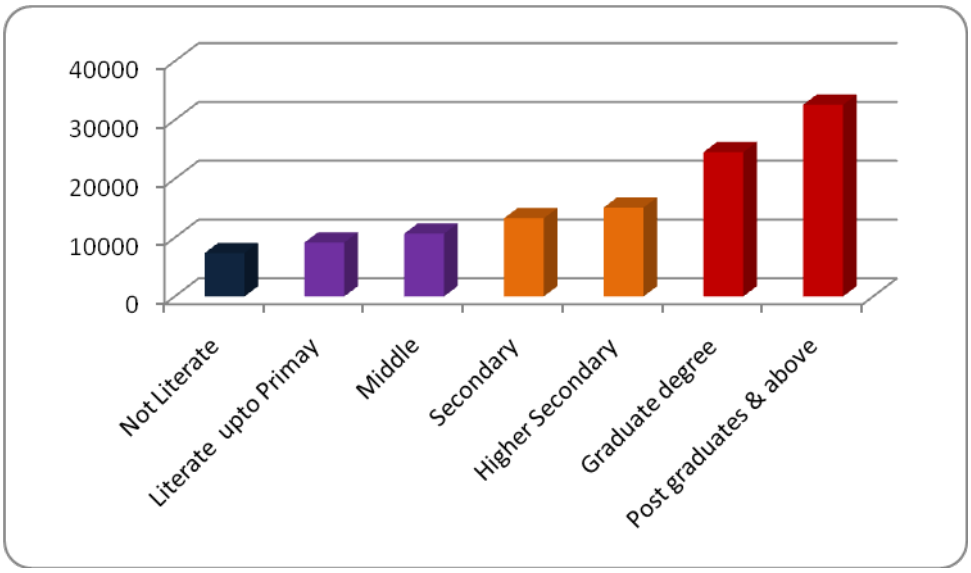
Source: *Educational Statistics in India* and *All-India Survey of Higher Education* (relevant years). New Delhi: Ministry of Human Resource Development/Education, Government of India.

Despite higher and growing rates of unemployment among the educated, higher education has been expanding due to a variety of factors. The first reason could be in spite of high rates of graduate unemployment for a number of years, generally, most individuals with higher education used to end with considerably higher levels of earnings and no doubt better future prospects, than those without (ILO, 1971, p. 160; NIckell, 1979). Graduates and postgraduates earn double the earnings of secondary/higher secondary graduates and 3.5 times higher than illiterates or mere literates (Figure 7).

Basically, educated unemployment does not prove that education is a poor investment. It is generally argued that overproduction by higher education takes place, or graduate unemployment rates increase, if private (individual) costs are low, and higher education is heavily subsidized. But private costs of higher education are increasing in India, as the student fees and other costs are continuously raised; and household costs of higher education have also increased rapidly. At the same time, private rates of return are also high and increasing. In a pioneering study in India, Blaug et al., (1969) attributed graduate unemployment in India to high private rates of return to higher education – the net present value of lifetime earnings of the graduates being higher than student fees and household costs, including opportunity costs the effect of unemployment on private rates of return in India is very small. In general, even recent rates of return show that higher education is still a profitable investment in India for the individual (and the society) even when allowance is made for significant waiting periods. Further, rates of return to higher education seem to be increasing over the years (Carnoy et al., 2012).

Figure 7

Regular Wages (Rs.) by Educational Levels in India, 2019



Source: Varghese &Sabharwal (2022), based on PLFS (2022).

Second, despite high rates of overall graduate unemployment, each student or his parents may be over-optimistic about the likelihood of getting employed after higher education. Among many households, a sort of demonstration effect operates, which results in further demand for higher education. One may also be gambling while going for higher education, speculating that she/he may be one of the few to be employed and not one of the majority to remain unemployed after completing her/his education. Student demand is also influenced by asymmetry of information about higher education institutions, their quality, employability, and labour market conditions. Due to weak labour market signals, even when employment is not high, many graduates still go for higher education, including specifically to those disciplines which are associated with over supply of graduates, and end up in unemployment – open or disguised. Graduates who are managing to get jobs are either mal-employed or employed at very low wages. The misalignment between educational qualifications and job requirements is reflected in the case of several jobs. After all, that graduates are applying for posts of peon, gardener, sweeper, watchman, and bailiffs is well-documented in several media and newspaper reports. For instance, in 2019, Gujarat High Court appointed 450 engineers as peons and bailiffs. Similarly, a sizeable number of engineering graduates applied for the posts of sweepers and sanitary

workers at the state assembly secretariat in Chennai in 2018. A recent ILO study (ILO, 2018) based on a survey of 3,500 online crowd workers (with strong representation from India and Indonesia) developed a profile of crowd workers: primarily male well educated (57 percent of survey respondents with university or higher education) were earning low wages – often below the minimum wage. These instances are indicative of the lack of appropriate employment opportunities for the graduates in the country, and the presence of mismatches between education and employment.

Thirdly, it is also argued that public subsidization of higher education influences the positive association between education and graduate unemployment (Ilchman, 1969). If higher education is relatively free or highly subsidised, during periods of high rates of unemployment, people opt for higher education, as higher education also serves the 'babysitting role.' At the same time, they can also simultaneously increase the probability of employment at a later stage and avoid immediate unemployment, as the demand for a more highly schooled labor force increases more rapidly than the demand for a less schooled labor force. Higher education is probably less costly than unemployment from the individual point of view; but unemployment is also viewed as a lesser evil. On the other hand, when the rate of unemployment declines, the opportunity cost of higher education increases, and as such, demand for higher education also decreases.

Despite high rates of graduate unemployment, why does the state expand higher education facilities? Normally it is expected that demand for higher education responds to demand of the production sector for graduate manpower; and plans of expansion of higher education facilities respond to growth in the economy and labour market needs. But people demand higher education, in spite of high rates of unemployment, not only for employment purposes, but also for various different purposes, like social prestige, and its value in the marriage market. The state also expands higher education facilities partly to meet this 'social demand' relating to the above purposes. Besides higher education also serves as a vote bank in politics. In general, the development of higher education in countries like India is solely not guided by economic considerations or employment. In fact, expansion of higher education is guided more by social, political, and constitutional reasons. State expands higher education to legitimize its role in promoting democratisation role of education. Also the social rate of return to higher education is high.

Generally, it is stated that supply creates its own demand. The supply of more and more higher education facilities, along with policies favouring increase in access, has resulted in growth in enrollments in higher education. Particularly the large number of private institutions and their aggressive marketing strategies adopted have caused 'spurious' demand for admission in higher education. Beyond this the principle of supply creating its own demand does not hold in the case of higher educated in employment market. Higher education produces more graduates, but employment opportunities may not necessarily increase proportionately.

Looking at the graduate unemployment situation in India, some tend to argue that we have an overeducated labour force. For example, Chowdhury et al (2022) have estimated the percent of overeducated workers in the industry and mining sectors; they range between 11 percent and 80 percent in different states. 'Over education' here may mean education level of the employed graduate being over and above the requirement for the specific job. After all, the Indian workforce *per se* is not overeducated: the proportion of adult population with higher education is not high, rather very low–, below ten percent (Table 8).There is a marginal improvement by 2019-20, but still below 15 percent.

Table 8

Labour Force by Educational Level in India						
	1983-84		2011-12		2017-18	
	Million	% Share	Million	% Share	Million	% Share
Not literate	167.72	57.4	129.69	30.2	116.96	24.2
Literate without formal schooling	6.02	2.1	2.02	0.5	1.6	0.3
Below primary	26.84	9.2	44.27	10.3	27.61	5.7
Primary	36.81	12.6	56.76	13.2	61.78	12.8
Middle	26.91	9.2	70.65	16.4	101.4	21.0
Secondary	20.32	7.0	50.98	11.9	59.19	12.3
Above Secondary	7.67	2.6	75.5	17.6	114.4	23.7
Higher Secondary			29.06	6.8	42.07	8.7
Diploma/certificate			6.47	1.5	7.93	1.6
Graduate			29.08	6.8	47.51	9.8
Postgraduate & above			10.9	2.5	16.89	3.5
Total	292.29	100	429.87	100	482.94	100

Source: Vahisht & Dubey (2022, p. 523) (based on NSS unit level data.

Despite high growth in the number of higher education institutions and student enrollments, we find that hardly 15 percent of the population of working-age have acquired higher (graduate and above including technical graduate) education. As high as 85 percent of the working-age population in 2019-20 have education equivalent or below higher secondary level only (Table 9).

Table 9

Educational Level of Population of Working Age-group		
	2019-20	
	All	*Youth*
Illiterate	20.2	6.8
Below Secondary	37.9	36.0
Secondary/Higher Secondary	29.3	42.6
Degree and above	10.3	11.7
Technical Graduate	2.0	2.5
Technical below Degree	0.3	0.4
Total	100.0	100.0

Source: Sharma (2022) (based on NSSO).

An important explanation for rising unemployment is generally argued to be the poor quality of higher education and lack of skills among graduates. The general criticism that our youth does not possess high level of skills seems to be true. The level of skills possessed by young people is very low. According to the Union Ministry of Skill Development and Entrepreneurship, a bare 4.7 percent of India's total workforce is formally skilled. Based on NSSO data, Sharma (2022) provides interesting evidence on this, classifying skills into four levels (Table 10): as high as one-fourth of the population are actually unskilled; 90 percent of the adult population are either unskilled or have very low level of skills.Barely five percent of the population is highly skilled. More importantly, one notices no significant improvement between 2011-12 and 2019-20, a period during which skill development has been a focus of public policy.

Table10

Distribution of Youth (age-group: 15-29) and Adults (age-group: 15-59), by Level of Skills				
Skill level	*Youth*		*Adults*	
	2011-12	*2019-20*	*2011-12*	*2019-20*
Unskilled (Level I)	32.0	25.2	30.5	25.6
Low Skill (Level II)	61.0	65.1	61.1	65.0
Medium (Level III)	3.4	4.7	4.0	4.5
High (Level IV)	3.6	5.0	4.3	4.9
Total	100.0	100.0	100.0	100.0

Source: Sharma (2022).

Except for a few high quality institutions, the quality and standards in the majority of higher education institutions are mediocre. Only a small fraction of universities and colleges received higher grades in the assessment of the National Assessment and Accreditation Council (NAAC); and only a few figure high in the national intuitional ranking framework (NIRF), not to mention the performance of Indian institutions in global rankings of universities. Most institutions – schools, colleges, and universities suffer from an acute shortage of qualified teachers, and basic physical infrastructure in terms of libraries, laboratories, and others. The poor quality of education and lack of skills among the graduates is reflected in the employability of graduates. Between 2018 and 2022 the employability of graduates has not changed much, hovering around 46 percent among all. A noteworthy feature is: females are more employable than men (Table 11).

Table 11

Employability of Higher Educated Graduates %			
	All	*Male*	*Female*
2016	38.1	34.3	40.0
2017	40.4	34.3	40.9
2018	45.6	34.3	38.2
2019	47.4	34.3	45.6
2020	46.2	34.3	47.0

2021	45.9	34.3	41.3
2022	46.2	46.0	51.4

Source: *India Skill Report 2022*.

But comparing the rate of employability in 2016 with that in 2022, one may note significant improvement in employability both among men and women. However, this improvement in employability is not accompanied by any increase in employment or fall in unemployment, as described earlier.

Obviously, employability is not uniform among graduates of various disciplines. The 'employment talent' measured by the Wheebox through its own tests, ranges from 21 percent among graduates of polytechnics and 58 percent among MBA; graduates of pharmacy come second from the top in 2022.

Table 12

Employability Talent among the Graduates		
Course	*2016*	*2022*
Polytechnic	16.9	21.4
MCA	39.8	29.3
ITI	40.9	31.3
B.E./B.Tech.	52.6	35.2
B.Sc.	35.2	38.1
B.Com.	20.6	42.6
B Arts	27.1	44.2
B.Pharmacy	40.6	44.6
MBA	44.6	58.1

Source: *India Skills Report 2022.*

Table 12 also presents the trends in the same between 2016 and 2022. In 2016, engineering graduates (B.E./B.Tech.) were doing better than all others, but over the years the position has changed; in fact in the case of graduates of MCA, and ITIs, besides engineering graduates, the situation deteriorated severely during this period.

Mismatches in India can be divided into two broad categories. Firstly, there is skill deficit or skill gap, where a worker's skill is not up to the requirements of the job or employers' expectations (Blom& Saeki, 2011). Secondly, there is skill underutilization (over-education or over-skilling), which arises when the level of education and skill exceed those required by the job. But a more familiar mismatch refers to the gap between the numbers of graduates produced and hired, which is yet another category. Skill gaps

and mismatches in skills have been highlighted by many (Sinha, 2022; Khare, 2022; Chowdhury et al., 2022). But few have made any quantitative estimates. In fact, the actual requirements of the production sector are rarely clear. The industry sector may not be able to precisely articulate its requirements.

Studies have shown that what employers look for in the graduates is not clear. While nearly almost all employers insist on previous job experience as an essential qualification while recruiting new people, not all firms, for example, in software look for engineering degree holders or master degree holders in computer applications; they also do not necessarily look for those with programming skills (Banerjee et al., 2009). They may look for market-ready skills, which are actually better provided through on-the job training or pre-induction training programmes by the employers. Making clear projections of manpower demands of the economy, and the specific skills needed is a challenging task. However, some estimates are available, though details are not available. According to *India Today* (Sept 18, 2021) report, by 2023, India needs additionally 2.3 million skilled professionals. *The India Skill Report* presents the skill gaps in different production sectors – manufacturing and services, based on the responses of the corporate sector, which are given in Table 13.

Table 13

Skill Gap in India (as expressed by corporate sector)	
Area	*%*
Overall	75
IT & technical industries	80
Engineering and manufacturing	80
Pharmacy and health care	50
Retail	100
Banking, Finance Services, Insurance	67

Source: *India Skill Report 2022*.

The skill gap is high not only in IT and engineering areas but also in retail, banking, and other services. Overall, the gap is about 75 percent.

The labour market conditions are also changing rapidly and it is indeed difficult to forecast with any level of precision which sector requires graduates and which numbers. *The India Skill Report* presents an idea of the changing employment market, by describ-

ing which sectors have hired most during the last few years (Table 14). We find wide variations in the hiring of graduates in various sectors even during a short period. In fact, significant changes seem to happen every year, which pose grave problems for educational planners and skill-providing institutions on which kind of sectors and skills have to be focused. Perhaps the answer lies in providing more general skills portable across different sectors than sector-specific skills.

The India Skill Report also identifies the kind of skills that are required to ensure a high degree of employability. The modern formal and even informal sector is highly diversified and rapidly changing. Modern service sector requires different kinds of skilled manpower. The production sector is currently witnessing a new age of automation and is driven by unprecedented technological advances that require a new set of dynamic skills.

Table 14

Which Sectors hire the most?	
Year	*Name of the Sector*
2015	Hospital
2016	Retail e-commerce, transport, Pharmacy, health care
2017	Core Sector, Oil, gas, Steel, minerals, software/hardware, auto ancillaries
2018	Banking Finance Service Insurance, retail
2019	Banking Finance Service Insurance, software/hardware, manufacturing
2020	Banks, Financial, Insurance, BPO, Internet business
2021	Banking Finance Service Insurance, software/hardware, IT, internet business
2022	Internet business, software/hardware, IT, Pharmacy, Banking Finance Service Insurance,

Source: *India Skills Report 2022* (Wheebox, 2022).

As per a survey, *India Today* (Sept 18, 2021) reported that 33 percent of educated youth are unemployed due to lack of future skills. A comprehensive set of graduate employment and sustainable employability skills and traits include basic and higher cognitive skills, technical and vocational skills, social and behavioural skills, foundational skills, employability skills, and entrepreneurship skills, which interact among themselves (NCAER, 2018). Simply they can be identified as follows (Table 15). They include not only skills to improve production efficiency but also some traits that promote human values.

Table 15

Variety of Basic Skills Required in the Employment Market

Key Skills for Digital Age	*Soft Skills*	*Other Skills (Traits)*
Digital Literacy	Interpersonal skills	Emotional intelligence
Data Literacy	Effective listening	Curiosity to learn continuously
Data analytics & interpretation	Public Speaking	Assertiveness
Business analytics	Communication Skills	Self-confidence/risk taking
Web development	Verbal ability	Competitive spirit
Knowledge management	Writing skills	Collaboration
Stress management	Leadership skills	Flexibility
Strategy planning	Critical thinking skills	Creativity
Social Media	Problem-solving skills	Healthy mind
Experimentation	Interview skills	Optimism, calmness
Time Management	Adaptability	Social behavior
Ethics and responsibility	Self-motivation	Empathy, concern for others
Human resource management	Negotiating skills	Concern for social objectives

Source: Drawn from *India Skill Report 2022*, Khare (2020), and many other documents.

These skills and traits listed in Table 15 are in addition to digital technical skills such as cloud computing, machine learning, deep learning artificial intelligence, data sciences, block chain, robotics etc., which are becoming necessary not only for those in IT sector, but also for everyone in the digital age. It is widely realised that digital literacy and up-skilling is not anymore an option; it is rather a necessity of all.

All this highlights difficulties in making any predictions about employment markets and also at the same time the need to continuously upgrade the curriculum of higher education and skilling programmes.

To increase the employability of graduates, for a long time, university-industry collaboration in teaching and research and mandatory internships of students in industry are suggested. Refueling entrepreneurship education and executive education has also been suggested. In addition, policy initiatives were taken for vocationalisation of secondary and higher secondary education. Specific skills –the conventional vocational, technical, and modern skills are provided in vocational and technical schools, training institutes like the polytechnics, Industrial Training Institutes, and many other bodies – formal and informal. While those educated people who have informal training, experience least unemployment, those with no training experience highest rates of unemployment; but surprisingly those with formal training are found to experience higher rate of unemployment than those with informal training (Bairagya, 2015). Hence broad skilling training strategies, including for up-skilling and reskilling need to be carefully designed. There are a few government and many private institutions providing a variety of skills. Most generic skills are provided also by educational institutions. According to the *India Skills Report* 2022, 51 percent of the companies recruit skilled manpower produced by the government skilling ecosystem. But government institutions are relatively few. However, when vocational/technical education at the school level has not progressed much, despite policy emphasis on the same since the second five-year plan (Tilak, 2003), vocational and skill-oriented courses were introduced in higher (undergraduate) education in colleges in the late 1980s. This too has not made much progress. On the whole, according to the annual PLFS reports (2019-20), only four percent of the youth (age-group 15-29) and 3.2 percent of the working age-population (age-group 15-59) received formal vocational/technical training (*Economic Survey 2021-22*, p. 361). These low levels underline the gigantic task to be accomplished. On the whole, preparing a skilled workforce remains a formidable challenge in India (Mehrotra, 2014). *The National Education Policy 2020* (GOI, 2020) strongly pleads for more in this direction. Further, given the changing labour market needs, and the need to produce creative individuals to cater to the needs of the 21st century requirements, the *Policy* argues that the graduates need critical and interdisciplinary thinking, intellectual curiosity, scientific temper, and more importantly the spirit of service, ethical behavior and integrity.The set of 'graduate attributes', when identified as proposed in the *Policy*, may cover a variety of these aspects.

Reforming Education

There have been quite a few attempts to reform education to address, *inter alia*, the problem of educated unemployment. Some of the reforms suggested in the *National Education Policy 2020* intend to ease the problem considerably. I may refer here to three major policy reforms: restructuring of higher education institutions, curricular reforms, and consolidation of higher education. In fact, there are many more that are also expected to contribute towards the goal.

The *Policy* recommends all institutions of higher education be transformed into multidisciplinary comprehensive higher education institutions; professional education, vocational education, and all areas of higher education will be an integral part of higher education; and all single-stream higher education institutions, including nearly half the universities, a large number of deemed universities and about 35 percent of the colleges, of which 85 percent are private, each offering only one teaching programme—ought to be phased out and/or to become multidisciplinary. This is a welcome recommendation. This may have far-reaching consequences for the quality of higher education and for the quality of graduates and their attributes. The curriculum in the multidisciplinary institutions will be interdisciplinary and liberal arts-based. Why liberal arts? The *Policy* makes it clear: "the purpose of a liberal arts education is not simply to prepare for one's first job, but also for one's second job, third job and beyond. With the coming fourth industrial revolution, and the rapidly changing employment landscape, a liberal arts education is more important and useful for one's employment than ever before" (GOI, 2019, pp.223-24). The liberal arts-focused multidisciplinary approach will cultivate a broader understanding of social problems and the appropriate problem-solving skills. Science & technology students might benefit from taking more liberal arts courses. Liberal arts make engineers, scientists, technologists, doctors, and professionals more humane, and encourage them to take up socially relevant research.

Second, an-added important component of *Policy* is the focus on skills. The *Policy* promises that in all levels of education, skills are to form an important part of the curriculum: the existing vocational and technical education/training courses at the school level and undergraduate level in colleges will be fortified with several initiatives to include more dynamic skills on the one hand, and providing the necessary infrastructure to the institutions. The National Skill Development Corporation that was established in 2008 with an objective of skilling about 500 million youth by 2022 with the involvement of 22 ministries, and the related recent initiatives like the National Skill Qualifications Framework (NSQF) are promising in this direction, though some feel that their contribution may be limited (Mehrotra, 2022). After all the goal of training 500 million youth has been proved to be a tall ambition and a 'classic case of market failure' (Kathuria & Krishna, 2022). Now the National Education Policy suggests using schools as the platform to bring in skilling and vocational education, and to make 50 percent of the school children skilled by 2025.

On the provision of skills in higher education, for the same reason, the *Policy* recommends restructuring of all the exiting first degree programmes into four-year degree programmes that provide simultaneously: (a) skills for decent employment (mainly useful for those who exit after the first or second year with a diploma/certificate), (b) advanced skills and knowledge good for employment and/or further higher education (for those who

exit after three years with a degree) and (c) further advanced skills, knowledge, and research capacities suitablefor employment, for admission in further higher (Master's level) education, and for admission in doctoral research programmes (for those who complete four years of the programme). This, along with skill universities that are being set up may be expected to fill to a substantial extent, the skill gaps in our graduates. Imparting a variety of skills, some of which are indeed life-long skills -- generic, social and cultural skills, communication skills, and advanced skills in technical and professional areas along with business ethics and human values in a multi-disciplinary set-up, as proposed in the *Policy*, may enhance considerably the employability of graduates. While the expectations of the *Policy* seem to be too ambitious, many states/universities have already initiated measures to restructure the programmes in this direction. There can be little doubt that education and skill development is a powerful strategy to reduce unemployment and improve the performance of the economy as a whole.

Thirdly, the *Policy* strongly underlines the need for consolidation of higher education, partly in response to the criticism that the system has over expanded and is becoming unsustainable with many low quality institutions. This is also partly in response to the realization that resources – human and physical, are thinly spread across a large number of institutions adversely impacting the quality of education. The *Policy* recommends mergers and closures of small universities and colleges. It recommends reorganisingof higher education institutions in such a way that we will end up with 150-300 Type I (research)universities, 1000-2000 Type II (teaching) universities, and 5000-10,000 Type III (teaching) colleges. While the binary classification of universities into research and teaching,and the proposed total number of universities may be inherently problematic, the recommendation with respect to the consolidation of higher education institutions essentially means a large-scale programme of mergers and closures of universities and colleges, which is desirable. The *Policy* also favours closure of all private commercially motivated low-quality institutions. The *Policy* feels a desirable enrollment size of a university to be in the range of 5000-20000/25,000, and a college in the range of 2000-5000. The proposal of the *Policy* for consolidation of higher education may also help in ensuring and raising quality and standards in higher education as instruction may get better endowed with physical and human resources. After all, it is widely felt that there has been a trade-off between quantitative expansion and quality, in favour of the former, as many new institutions have been set up with small number of teachers and insufficient basic infrastructure. All institutions –schools, colleges, and universities – both new and old, have been facing a severe faculty crunch, in addition to the lack of physical infrastructure and laboratories to impart quality education and training. Special attention is needed for the recruitment of quality faculty and the provision of a conducive environment for effective teaching, learning, and research, which includes good infrastructure consisting of librar-

ies, classrooms, laboratories, and modern equipment. The *Policy* also proposes "all HEIs will *be adequately resourced and staffed with high quality teams of faculty and members in* other roles, including leadership roles' (GOI, 2019, p. 213). Further, by laying additional focus on teacher education, the *Policy* gives special attention to the improvement of quality of education at all levels. All these measures may be hoped to improve the employability of the graduates and ease the unemployment situation substantially (see Tilak, 2019, 2023).

IV. Recap and Concluding Observations

The imperfections in the graduate employment market and the way they caused disequilibria in the economy – mismatches, skill gaps, devaluation of degrees/qualifications, demand-supply gaps, and overall poor knowledge base, and low productivity that Panchamukhi (1987) identified a few decades ago continueto plague the Indian system today. The nature of strategies that avoid disequilibrium in the graduate labour market and minimization of mismatches between supply of educated manpower and the demand for the same depends upon the relationship between education and the economy and the functioning of the labour markets (Carnoy, 1987). As long as the role of education to supply manpower to the economy is recognized, it is necessary that the education system produces 'employable' (not necessarily ready-for-job) graduates with relevant knowledge, attitudes, and skills and that the development strategies of the economy generate adequate employment opportunities for educated manpower. The growth in educated unemployment needs to be checked through a multi-pronged attack on education as well as the socioeconomic system. As Coombs (1985, p. 204) warned, in the long run "in the absenceof sweeping readjustments and innovations in both educational and economic systems, the world of education and the world of work will become increasingly unbalanced and maladjusted."According to Mundle (2017), in India the 'failure of education policy' and the 'dysfunctional employment policy' are responsible for the problem of educated unemployment in the country. They together form a major reason for low productivity, low-paid jobs and high rates of unemployment. So both need to be simultaneously addressed.

Confining to open unemployment among the educated, and ignoring hidden (or invisible) unemployment, underemployment, disguised unemployment, frictional unemployment and mis (or mal) employment, which are also important dimensions of the same malaise, I have attempted in this paper to present a brief idea of the extent of educated unemployment and a few related aspects. The relationship between education and unemployment is briefly described and I have also briefly reviewed a few major policy initiatives in education and skills that directly or indirectly aim at the problem of employability and unemployment of graduates.

Quite interestingly, we note that often there is a complaint of excess supply of graduates by the higher education system, but at the same time, we also note a high degree of shortages of skilled manpower. There is a high level of mismatches between educational qualifications and the jobs the graduates are employed in. Many graduates are found to be under-qualified for many jobs. At the same time, there is an over-educated labour force, resulting in even post-graduates and doctorates competing for jobs meant for secondary school graduates.

In the literature on the economics of education, one finds researchers arguing for experimentation with various strategies to check graduate unemployment by regulating the growth of higher education on the one hand and linking higher education with the industry sector, besides strengthening labour market information systems. Educational reforms suggested in the 1970s and 1980s include abolition of examinations, delinking of degrees from jobs, curricular reforms in favour of vocational skills, reduction in public subsidies and increase in fees in higher education, and reforming the wage structure in labor markets. Some of these are still relevant. With relative focus on skills and competencies, degrees are actually getting delinked in many private sector jobs.

Some of the reforms attempted in the past have had only a marginal impact on unemployment, some were found infeasible. Any attempt to reduce the growth in higher education, by restricting supply, has not been found feasible, given the drive towards massification of higher education systems on the one hand, and on the other hand severe democratic pressures for expansion of higher education, and fears of affecting economic growth.

Reducing unemployment itself reduces demand for higher education because when unemployment decreases, the opportunity costs of education increase. It may be noted that the expansion of education may not appear to make an immediate impact on employment. Initially, it may appear to worsen the problem. But in the long run, that may still turn out to be a desirable path and the option is to raise the quality and relevance of higher education for the growth of the growing and increasingly diversified and changing economy in terms of its production structure. One may rightly expect the higher education system and the skill development programmes to respond positivly to the growing concerns and needs, and the changing diverse needs of the economy. We should also at the same time, do not ignore the human development role of higher education and to produce global citizens with universal human values. Sound and efficient higher education

and training strategies will have to be carefully formulated to meet the twin goals and to help building a strong education edifice and a strong nation through education.

References

Bairagya, Indrajit (2015). Socio-economic determinants of educated unemployment in India. Working Paper no. 343. Bangalore: Institute for Social and Economic Change.

Banerjee, Abhijit; Bertrand, Marianne; Datta, Saugato & Mullainathan, Sendhil(2009). Labor market discrimination in Delhi: Evidence from a field experiment, *Journal of Comparative Economics 37*(1): 14-27.

Basu, Anwesha & Veeramani, C. (2022). Declining labour share in Indian economy. In: *India development report 2022* (ed. S.Mahendra Dev) (pp. 306-21). New Delhi: Oxford University Press.

Becker, Gary S. (1962). Investing in human capital: a theoretical analysis, *Journal of Political Economy 70*(5): 9-49.

Becker, Gary S. (1975). *Human capital.* New York: National Bureau of Economic Research [2nd edition]

Beniwal, Vrishti (2022). Why India's world-beating growth isn't creating jobs, *Washington Post* (November 30).

Blaug, Mark (1973). *Education and employment problems in developing countries.* Geneva: International Labour Office.

Blaug, Mark; Layard, Richard & Woodhall,Maureen(1969). *The causes of graduate unemployment in India*. London: Allen Lane, Penguin Press.

Blom, Andreas & Saeki, Hiroshi (2011). Employability and skill set of newly graduated engineers in India. Policy Research Working Paper 5640. Washington DC: World Bank.

Carnoy, Martin (1977). *Education and employment: A critical appraisal.* Paris: UNESCO, International Institute for Educational Planning.

Carnoy, Martin (1987). *Higher Education and graduate employment in India*. IIEP Research Report No.64. Paris: UNESCO-International Institute for Educational Planning

Carnoy, Martin; Loyalka, P., Androushchak, G.V., & Proudnikova, A. (2012). The economic returns to higher education in the BRIC Countries and their implications for higher education expansion (Higher School of Economics Research Paper No: WP BRP 02/EDU/2012). Moscow: National Research University.

Chowdhury, Suhana Roy; Bros,Catherine & Gooptu, Sayoree (2022). Education, skills mismatch, and wage differentials. In Varghese & Khare (eds.), pp. 153-66

Cleveland, Harlan (1975). The little league and the imperatives of interdependence, *Education Record 56* (Winter): 5-9.

DGE. Directorate General of Employment (2021). *Employment exchange statistics 2021*. New Delhi: Ministry of Labour & Employment, Government of India.

Ghai, Surbhi (2018).The anomaly of women's work and education in India.Working Paper no. 368. New Delhi: Indian Council of Research in International Economic Relations.

Ghose, Ajit K. (2019). *Employment in India*. New Delhi: Oxford.

Ghose, Ajit K. (2023). India's exclusive growth, *Economic and Political Weekly 58*(6) (11 Feb.): 35-42.

Ghose, Ajit K. & Kumar, Abhishek(2021). India's deepening employment crisis in the time of rapid economic growth. Working paper no. 01/2021. New Delhi: Institute for Human Development

GOI: Government of India (2019). *Draft national education policy*. New Delhi

Government of India (2020). *National education policy*. New Delhi

Government of India (2-22): Economic Survey 2021-22. New Delhi.

Hazlewood, A. (1989). *Education, work and pay in East Africa*. Oxford: Clarendon Press

Ilchman, Warren F. (1969). "People in plenty": Educated unemployment in India, *Asian Survey 9(*10) (Oct.): 781-795

lLO: International Labor Office (1971). *Matching employment opportunities and expectations: A programme of action for Ceylon*. Geneva.

ILO (2018). *Asia-Pacific Employment and Social Outlook 2018: Advancing decent work for sustainable development*. Bangkok.

Kathuria, R. & Krishan, U. (2022).The crisis of jobless growth in India.In Varghese & Khare (eds.), pp.25-36

Khare, Mona (2020). Graduate employment and sustainable employability skills in India. CPRHE Research Paper Series No 14. New Delhi: CPRHE, NIEPA.

Khare, Mona (2022). Skills mismatch of higher-education graduates in India: factors determining employability quotient. In Varghese &Khare (eds.), pp. 111-31

Levin, Henry M. (1983). Youth unemployment and its educational consequences, *Educational Evaluation and Policy Analysis 5*(2): 231-247

Madheswaran, S. & Parida, J.K. (2022). Declining Labour force participation in India: Does education and training help? In Varghese & Khare (eds.), pp. 68-88

Mehrotra, Santosh (2014). *India's skills challenge.* New Delhi: Oxford

Mehrotra, Santosh (2022). India's national skills qualifications framework and employment: The promise and the reality. In Varghese &Khare (eds.), pp. 169-95

Mehrotra, Santosh (2023). How India's rulers have dashed the hopes of its younger citizens, *Scroll.in* (January 8).https://scroll.in/article/1040596/how-indias-rulers-have-dashed-the-hopes-of-its-younger-citizens

Mincer, Jacob (1991). Education and unemployment.Working paper 3838. New York: NBER. DOI 10.3386/w3838

Mundle, Sudipto (2017). Employment, education and the state. Working Paper No. 188. New Delhi: National Institute of Public Finance and Policy

NCAER. (2018). *Skilling India: No time to loose*. New Delhi: National Council of Applied Economic Research and J.P. Morgan.

Nickell, Stephen (1979). Education and lifetime patterns of unemployment, *Journal of Political Economy 87*(5): S117-S131

NSSO: National Sample Survey Organisation. (various years) *Employment and unemployment survey*, (various round). New Delhi: Ministry of Statistics and Programme Implementation.

Panchamukhi,. P.R. (1987). *Graduates and job markets*.Occasional Paper 74. Paris: UNESCO-International Institutefor Educational Planning.

PLFS: Periodic Labour Force Surveys (various years). New Delhi: National Statistical Office.

Psacharopoulos.George (1981). Education, employment and inequality in LDCs. *World Development 9*(1) (January): 37-54.

Sharma, Alakh (2022). Youth Employment and Unemployment in India: Issues and challenges, *Indian Journal of Labour Economics 65*: 237–267. https://doi.org/10.1007/s41027-022-00387-5

Shaw, Abhishek (2013). Employment trends in India: An overview of NSSO's 68th round, *Economic and Political Weekly 58*(42) (19 Oct.): 23-25

Sinha, Ritika (2022). General, technical, and professional education: Employability skill gaps. In Varghese & Khare (eds.), pp. 132-52

Subbarao, Duvviru (2023). Make in India. Indians need it it, *Times of India* (5 April))

Tilak, Jandhyala B. G. (1992). Measurement of training costs. In: *International encyclopedia of adult education and training* (ed.: A.C. Tuijnman). Oxford: Pergamon, [1996, 2nd edition], pp. 873-78.

Tilak, Jandhyala B. G. (2003). Vocational education and training in Asia. In: the *Handbook on educational research in the Asia Pacific region* (eds. J.P. Kleeves & Ryo Watanabe) Dordrecht: Kluwer Academic Publishers, pp. 673-86

Tilak, Jandhyala B. G. (2019). Perennial problems and promising but perplexing solutions: A critique of the draft national education policy 2019 (A.N. Sinha Memorial Lecture 2019, Patna). *Social Change 49*(4) (Dec.): 686-712

Tilak, Jandhyala B. G. (2023). On reforming higher education in India, In: *Oxford handbook on globalization and education*, (Eds.: Paola Mattei, Xavier Dumay, Erich Mangez and Jacqueline Behrend). Oxford University Press (in press)

UNDP (1996). *Human development report 1996*. New York: United Nations Development Program.

UNESCAP (1987). *Economic and social survey of Asia and the Pacific 1986*. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific

Wheebox (2022). *India skill report 2022*. Gurugram: Wheebox Corporate Office

Varghese, N.V. (1989). *Education and labour market in India*. Research Report No. 67. Paris: International Institute for Educational Planning/UNESCO.

Varghese, N.V. & Khare, Mona (eds.) (2022). *India higher education report 2020: Employment and employability of higher education graduates in India*. London: Routledge.

Varghese, N.V. & Sabharwal, Nidhi S. (2022) Thefuture of higher education in India: From massification to universalisation. CPRHE Research paper 16. New Delhi: National Institute of Educational Planning and Administration.

Vashisht, Pankaj & Dubey, Jay Dev. (2022) Technology and future of jobs in India. In: *India development report 2022* (ed. S.Mahendra Dev) (pp. 322-29). New Delhi: Oxford University Press.

Political Economy of Tribals' Development and Well Being: A Case Study of West Bengal

Purba Chattopadhyay[1]

Abstract:

West Bengal, a state of India endowed with diverse flora and fauna,expanding from the Himalayas in the north to the Bay of Bengal in the south.The agroclimatic conditions has six distinct regions like the hill region in the north, the terai and Teesta alluvial region of north Bengal, the lateritic, red and gravely undulating region in the west, the coastal alluvial region in the south, the Gangetic alluvial region in the east and the Vindhya alluvial region in the centre. Matching to this diverse geographical endowment, the State is home to some fifty lakhs tribal population, which is about 5.8% of the total population of the State. The ethnic background of these, officially about, 40 tribes are again as varied as the geographical endowment.

Given the context, the aim of the present paper is to look into the political economy of the development of these diverse tribes of West Bengal contingent to the development history of India. The paper looks into certain basic markers of development and well-being of the tribes, and tries to look into the concept of tribes as understood in India, read alongside some important theoretical perspectives, and tribal assimilation within the social structure of India. Ultimately, it analyses the gaps in the approaches to development of the tribes, and attempts to engage with the ways of overcoming these gaps.

Key Words: West Bengal, Tribe, Health, Well-being, Development.

JEL Classification: I10, I12, I14, I15, J15

I. Introduction:

The primary aim of any State[2] since time immemorial had been to understand and accept that human well-being as the basic foundation, and an indispensable form of a sound society, and its successful development and prosperity.In third century, BC, Aristotle[3] came up with the concept of Eudaimonia – the contented state of feeling healthy, happy and prosperous. Later this transcended to the concept of well-being. Well-being, a concept which may be defined as, the state of being comfortable as you are, healthy both

1. Associate Professor (Economics), Department of Home Science, University of Calcutta, 20 B Judges Court Road, Kolkata 700027, purba25cu@gmail.com, pchomesc@caluniv.ac.in

2. A nation or territory considered as an organized political community under one government

3. Ancient Greek philosopher and polymath (384 BC to 322 BC)

physically and mentally, and contended. Understandably, it is an extremely important multidimensional indicator which throws light on the perception of people about their lives going well.Various disciplines have sought to look into the design and content of well-being through their domain specific lens, but the specific definition depends on the conceptual approach employed, which mostly is cutting across the disciplines. In today's world, well-being may be categorised as internal (subjective) and external (objective). Inner well-being is seen as a human - spiritual well-being associated with one's personal characteristics and features. External well-being develops from the perspective of perception one's state in context of their evaluation of human society.Each level consists of four levels[4] of circumstantialtraits that together constitute well-being:

I. one's existence in accordance with their natural essence (in harmony with others and the environment);

II. an innate understanding of what is good for oneself, and the presence of the ability and willingness to achieve it;

III. one's the ability to realize their human potential and plan for life;

IV. the creation of a society and empowering people to fulfil the above stated positions 1, 2, 3, and increase activity and awareness.

On the other hand, development is a process of desirable change that is largely expected, planned, and administered by, or at the very least impacted by, governmental action. Therefore, the idea of development entails (a) a change in some elements pertaining to well-being of an individual or of a group or commune of people, (b) a plan or prediction for materialising it, and (c) the engagement of the government, general public and administrative set-up in achieving that plan or prediction. The process of empowering individuals to realise their own goals is sometimes referred to as development. Therefore, it must be concerned with changing society as a whole by integrating its economic, social, political, and administrative dimensions in order to achieve overall, balanced upward change. In a way the ideal development should lead to well-being and well-being of masses could be an indicator of development.

Given this premise, the present paper will attempt to look into the development and well-being of the tribes of West Bengal. Section 2 will present a brief literature review of studies on tribes of West Bengal. The next section of the paper will look into the concept of tribes as understood in India alongside some important theoretical perspectives and their assimilation within the social structure. Next, Section 3, will present some basic indicators of well-being of the tribes of West Bengal. Section 4 will analyse the problem mainly from the theoretical view point and the last section will be the conclusion.

II. Brief Literature Review:

The review here considers some major studies on tribal development or wellbeing in the past one and half decades specifically in context of West Bengal. A study was carried out by Sinha (2006) on the reproductive health of Santhal women in Santiniketan. The study showed the overall poor reproductive health awareness and child rearing practices. Socio economic factors such as low literacy levels, poor economic conditions and lack of knowledge on general health were the factors responsible for the results. A comparative cross-sectional study has been done by Chakraborty et al. (2008) on Santhal children of Ghatsila (Jharkhand) and Bolpur (West Bengal) to inspect their physical growth and nutritional status. No significant differences were found in two separate geographical locations in terms of height, weight, body mass index (BMI) and mid- upper arm circumference (MUAC). As an influence of the same socio-economic conditions, high prevalence of under nutrition and poor growth rate were observed. Various studies Guha and Ismail(2015), Sarkar and Singha (2019) Tarafhdar et.al. (2022) have also shown that Santhal tribe is no exception when it comes to the impact of culture on health seeking behaviour. The Santhal tribe is a very close-knit group which follows the path of different practices religiously. They believe that supernatural powers exists and because of this they tend to deviate from using the modern medicines. It is common in many other rural populations in India. The Santhal tribe is more well versed in interpersonal communication but they lack awareness. Dhargupta et al. (2009) have carried out a study in which they studied the socio-economic variables to acknowledge the key reasons behind maintaining one's health status. They found out that the reasons which contribute to the improved health status of the Santhal tribes are variables such as education, occupation and house types. 76 Published studies have been reviewed to confirm and understand the prevalence of chronic energy deficiency (CED) by Das and Bose (2015). They focused on the studies which were done on the basis of BMI and various other demographic profiles of Indian tribes. The researchers concluded that there is lack of data related to the bio-social profile of almost 600 tribes. Other studies they came across which were related to the enhancement of health and nutritional status of tribes were concentrated on the socio-economic factors such as providing job security and opportunities.

Mohammed Ayub Mallik (2011) carried out research in the Jamalpur block of Burdwan District to find out the areas which will boost the tribal development scenario there. The results obtained shows that increase in the income of the tribals by increasing employment, finding out the co-operative and marketing structures and increase in the agricultural production along with improvements in the economic conditions of the landless among the tribals requires the maximum attention to implement action plans to boost these areas as it will lead to the development of the community. Manna et al. (2011)

studied the influence of socioeconomic factors on antenatal care and delivery practices of the women of North Bengal. The study showed that the Muslim mothers, scheduled tribe mothers, non -educated mothers with higher age group were less interested about antenatal care. Hence, it was concluded that the antenatal coverage and delivery practices were significantly influence by the socioeconomic factors.Mukherjee et al. (2014) did a study on the maternal health status in tribal area of Bankura district of West Bengal. From the study it was concluded that antenatal care and postnatal care were preferred by most of the respondents. The respondents were found to be the beneficiaries of Janoni Surakhsha Yojona (Program run by Govt. of India to decrease the neo-natal and maternal deaths). The received antenatal care were highly positively and significantly correlated with postnatal care. Pregnancy complications were found to be significantly increased with the non-institutional delivery. the health complications among mothers were found to increase because there was a trend to take delivery assistance from non-doctors. Pal et.al (2015) studied the socio-economic status of four different tribes of West Bengal. The aim of the study was to find out the present socio-economic status of the different tribal sub caste. Socio economically all the sub caste were found to be different from each other. Toto and Santhal were found to have multidimensional livelihood options while on the contrary Sabar and Oraon mainly worked as labourer. Comparing all the four tribes, it was found that Sabar had low socio-economic status among them along with that very low level of literacy.

In the study by Rizvi (2017) it can be observed that in the previous times expensive treatments are not provided to the people, they are treated mainly with the ayurvedic medicines available locally by the herbalists. Khanda (2018) studied the level of education in tribal women in West Bengal and to look over the facts which were restricting their way to success. From the entire study it was concluded that the education was being observed as the weapon to face and remove all the barriers and challenges to success and then only they will be independent economically.The study done by Chakraborty (2018) was aimed to show the present educational status of the tribes of West Bengal with the special reference to West Midnapore where it can be observed that according to the census 2011 where the rate of literacy in all over India is 74.04%,the rate of literacy of West Midnapore among the tribes is only 58.96% whereas it is 57.97% among the tribes of West Bengal related to the literacy rates of the whole state i.e., 77.08%. This study not only shows the differences between the literacy rates of West Bengal and West Midnapore related to India but it also revealed that the rate of literacy of the tribal groups is much lower than the overall literacy rates of west Bengal as well as of India. Sarkar and Singha (2019) have studied the factors influencing health of the Santhals in the selected villages of Birbhum district in which they discussed about the impact of the social, economic and cultural factors on the health seeking behaviour.

Rana et.al. (2020) in their ethnographic study on tribes of West Bengal looked into the basic problems of life faced by the Adivasis. The focus of the study has also been to understand the nature of disadvantage, of about 20 tribal communities. Talukdar and Mete (2021) carried out a study on social media in changing the culture of tribal community in West Bengal in which the main purpose was to explore the impact of social media that will affect the social and cultural lives of the tribal groups of West Bengal. It was observed that there was a positive impact of social media on the changing lifestyle of the tribes of West Bengal.Acharya (2021) carried out the Socio-Psychological Study of Santhal Tribes of West Bengal and the Effect of Smoking and Drinking on their Daily Living. The study was done on the Santhal tribe of Bijatola Block of Mayurbhanj District and the results obtained revealed that there was a significant effect of the substance abuse on the daily living of the tribal people.Paul (2021) carried out a study in Purulia district of West Bengal to observe the influence of sports culture for the development of wellness of middle aged tribal women. The obtained results showed that there was a positive beneficial impact on the total wellness when the sports culture was enriched by regular physical exercises, playing different sports and some theoretical informative classes.

Majumdar and Chatterjee (2022) studied the subjective well-being of the Lodha tribe in West Bengal. They concluded that along with the policies related to the material benefit, other areas should also be focused like mental health and policies should be made regarding the improvement in such vital areas too. Mal and Khatun (2022) studied the status of women among the tribal communities of West Bengal. The obtained results revealed that the women among the tribal communities' face gender discrimination just like any other community in India. Women from the tribal communities were found to be considered as the economic assets of the tribal households but were devoid of their social rights. The study also highlighted the causes of gender disparity and suggested measures to mitigate the gender discrimination for the same. Bisai and Nandi (2022) studied the nutritional status of tribal preschool children based on clinical assessment in Paschimanchal, West Bengal, India. The obtained results showed the clinical signs for difference in nutritional deficiencies diseases and many other communicable and non-communicable diseases.

The brief review reveals that various studies conducted on the tribes of West Bengal bring out the poor development indicators of the tribal population. These indicators were mainly regarding health, socio-economic condition and education. Based on this review the next section will try to trace the history of the tribes in India with special reference to West Bengal and in the process will attempt to correlate the findings to the development indicators of the tribal population.

III. Locating the Tribes in Indian Social Structure:

The ILO Convention, 1989(No. 169) defines indigenous and tribal peoples are those peoples "whose social, cultural and economic conditions distinguish them from other sections of the national community, and whose status is regulated wholly or partially by their own customs or traditions or by special laws or regulations"[5]. In India however, we come across many social groups or societies who might have some of these characteristics, but not all of them are denoted as tribal groups. The term tribe is more functional in nature in India where we talk of tribe as Scheduled Tribes[6] (STs), the social groups recognized or listed in the Schedule of the Constitution of India. Therefore, by definition, the Scheduled tribes are "such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are deemed under Article 342 to be Scheduled Tribes for the purposes of this constitution". This demarcationdemonstrates that there is no distinctiveclassification regarding tribal groups in India in our Constitution. The identification is done on purpose or with functional aspects only. However, a brief scrutiny will reveal that, indications of primitive traits, distinctive culture, geographical isolation, shyness of contact with the general community at large, and backwardness were the basic distinguishing features of scheduled tribes. These characteristics although never explicitly defined were present in the major reports and commissions of Independent India like, the reports of first Backward Classes Commission 1955, the Advisory Committee (Kalelkar), on Revision of SC/ST lists (Lokur Committee), 1965 and the Joint Committee of Parliament on the Scheduled Castes and Scheduled Tribes orders (Amendment) Bill 1967 (Chanda Committee), 1969.

However, this gross simplification of Scheduled Tribes as a composite group has its own problems. Primarily, tribes located across the length and breadth of the country cannot be considered as a composite group. Moreover, just like the greater society, the levels of development, their exposure and assimilation to the mainstream society too are at varied levels. And this is the reason why there remains large differences in the indicators of well-being as perceived like education, health seeking behaviour, economic activities, social positioning and even aspiration and life satisfaction.The data reveals the stark differences in these variables among the tribal groups located at various geographical locations across the country. Moreover, the levels of development always have been a dynamic concept undergoing continuous changes over time. Thereby, any policy of treating the tribes has to acknowledge the specific stage of development and other cultural and social aspect of that particular tribe. Moreover, the term indigenous may not in fact fit in

5. C169 - Indigenous and Tribal Peoples Convention, 1989 (No. 169)
6. Article 366 (25) defined scheduled tribes as "such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are deemed under Article 342 to be Scheduled Tribes for the purposes of this constitution"

with the vast and complicated tribal history. All designated ST's may not be indigenous people as migration too had a role to play in assimilation of diverse people with distinct ethnic background in a particular geographical location. Also, a tribe which may be indigenous at a particular geographical location may not be considered as native population for examples the Munda's who are native of Jharkhand but may not be said for West Bengal or Odisha.

Historically, in specific context of India, the dichotomy within the tribal and non-tribal society remained. Religious text and scriptures have reference to tribal communities in specific. Stillthese two distinct groups co-existed with the relationship more or less symbiotic in nature where the tribes were seen more as son-of-the-soil living in outskirts of the traditional society within their own world in harmony with nature. However, with political emergence of so-called nation state, and development of means of transport in the medieval age, the tribal societies were forced to withdraw from the tribal dominated areas as land was annexed into the kingdoms and hence were further pushed back into inaccessible regions amidst nature. The next blow came to the tribal societies when colonial rulers appeared and started to exploit the abundant natural resources of the country. Tribals were primarily dependent on agriculture, hunting and forest produce as their source of livelihood.The British enforced the Forest Act of 1865 and 1878 and established monopoly over the forested land, as a consequence the tribals lost their agricultural land and were turned into landless and bonded laborers.Restrictions were imposed on the use of forest produce which led to complete loss of livelihood of tribals and lastly this introduced non-tribal money lenders, businessmen in the simple life of tribals. As a result, history witnessed several tribals revolt against British rule. Some of the most famous tribal revolts being the Koala Tribe Revolt (1820 to 1837), Santhal Tribe Revolt (855-56), Rampas Tribe Revolt (1879), Munda Tribal Revolt (1895 to 1901), a revolt led by Birsa Munda[7]. Quite unfortunately these sporadic revolts Revolt were localised, lacked unity and structure and the platform for fight was too tilted towards the British equipped with modern day weapons against the Tribals who were fighting with bow and arrows. The struggle for the indigenous people was more difficult as habitually they remained in the fringes and their exploitation, hardship and fight never got the attention even from the fellow non-tribal country people. The tribal people's fierce resistance and retribution to this attack on the established order forced the British to reconsider their attitude. Once they had come to terms with and expressed satisfaction with the extension of their legal dominion over their region, they accepted the unique circumstances in the tribal belt and their right to self-management.The manipulative foreign rule on one hand included the

7. Indian tribal freedom fighter, and folk hero who belonged to the Munda tribe (15 November 1875 – 9 June 1900)

tribes into mainstream economic activities on the other hand they excluded certain areas designated as tribal areas from the rest of the country. In the tribal dominated areas, two general styles of administration arose. First, a few tribal territories were labelled as excluded regions. Without outside intrusion, the tribal communities in this area kept all of their rights to manage their lands, forest, administration of justice, etc. The hills in the north-eastern region made up the majority of these places. The rest of the country's tribal regions—some of which were referred to as partially excluded areas—were gradually integrated into the formal administrative structure, either directly as a part of British territory or indirectly through princely kingdoms. Due to the traditional community's apposition with a powerful formal administration and the extension of new laws with accompanying complicated procedures for their execution, adjudication, etc., exceeding their traditional forms, a new scenario was established in the tribal lands. An interesting form of dual exploitation could be observed in this transition:

A. Firstly, due to sudden inclusion of the tribes into the main stream society, the economic and societal pattern of functioning and laws were totally alien to them. Inclusion led to nontribal people entering tribal areas as traders, service providers, contractors and money lenders etc. They abused tribal people in various ways. The tribal people, ignorant of monetary economy could not cope with the changing situation and reduced to land less wage labourers in most of the cases. This led them to lose their traditional abode and existence and had catastrophic impact on them.

B. Secondly, due to the policy of exclusion they remained in the fringes of the society. Such exclusion led to stagnation in economic progress and infrastructural development of these areas.

C. In case of point A, the inclusion did not mean inclusion in educational upliftment, or infrastructural development or administrative or political assimilation. While, in case of point B, the exclusion did not mean that the areas demarcated as tribal zones were left alone. These areas were severely exploited and penetrated by the foreign rulers for these were the natural reservoirs.

D. The unfair operation of inclusion and exclusion, led to a vicious circle of exploitation. Moreover, traditionally the tribals were not dependent upon the non-tribal societies for their social, cultural and physical existence. The crude trade relations mainly barter system of exchange with the non-tribal world was not enough to enter their intricate social fabric. This led to the fact that they could not get assimilated into the mainstream social structure and always had an independent existence. The exclusion led to barriers to economic, education and other crucial factors which are extremely vital for well-being and development.

Studies by scholars like Xaxa(1999, 2008) had pointed out that, "in a caste based ranked society, as it was prevalent during colonial and at the dawn of independence, the tribal people were unable to identify themselves and place themselves in social strata. They had to identify, at best, as either a caste people or an uncivilized lot". Thus, in the given circumstances the tribes remained at the fringes of the society, often having a strong general perception of the mainstream society against them as well as had to face continuous assault on their land, livelihood and were thus forced more and more to the fringes of the society. Unfortunately, due to this truncated understanding of the tribes even after independence the situation did not improve.

The paradox in these tribal communities is that the State's own modern formal system has been the most important contributor to their impoverishment. This was partially intentional because many unfavourable effects result from the State's own well-established regulations. However, it's probable that when the policies were created, their ramifications weren't completely understood. Last but not least, the socio-economic pressures resulting from the planned economic development of the national economy had numerous negative effects on the indigenous people as well as caused many of them to be deprived. However, it should be noted that deprivation is not universal nor uniform in its frequency. It is negligible in many of the highlands protected by the Sixth Schedule and insignificant even in some of central India's most isolated regions. The new urban, industrial, and mining centres that have just been formed and were expanding at an incredible rate as the outposts of the modern economic system in these distant places are where it was most severe.

The dramatic collapse of the tribal system started when the state's long-standing domain over these regions was operationalized in the nineteenth and twentieth centuries propelled by strong forces of economic development. The community's long-standing authority over the natural resources under its control was first questioned and then gradually displaced by the new institutional framework. For instance, the Indian Forest Act[8] applied to *their* forests. The forests were now designated as *protected* or *reserved*. As a result, they came under the administrative jurisdiction of the Forest Department while only giving up a small number of rights and some concessions to their original proprietors. The tribals oblivious of these new developments led peaceful lives in the fringes and even participated in the menial activities related to these institutionalised developments. Unfortunately, the laws and regulation governing them in the new circumstances was difficult for them to understand while the State too had it developmental goals and priorities for which the tribal problem was often confused with underdevelopment and few rights and concession were granted to them to use the resources. Interestingly, this approach was a temporary solution for a greater problem where the tribes were becoming trespassers in their own

8. An *Act* to consolidate the *law* relating to *forests*, the transit of *forest*-produce and the duty leviable on timber and other *forest*-produce.

home comprising their land, deities and ancestors. The rights and concessions in the natural progression slowly were withdrawn and this time the Laws governing the land even the fringes of the jungles or the wastelands were under State ownership. The age-old system of community ownership of land was not recognised under the new circumstances.

The recognition of individual rights over land and private ownership land came as a final blow to the superior authority of the clan with which the tribes were traditionally accustomed to.The community and the clan entirely lost all command over the region they had long controlled. Two terrible things happened as a result of these changes. The first logical result of private land ownership was that the owner might freely or forcibly alienate their property. As a result, the basic tribal lost the cosy cloak of community ownership, which served as a barrier against the issue of alienation. Second, the official State records kept by the system's diminutive butmighty representative, the patwari[9], replaced the community's custom and knowledge as the ultimate embodiment of a person's title to a plot of land. As a result, the person in the new circumstance was left at the pity of a complicated system of administration which was incomprehensible for him/her. As a result, the tribal community lost control over its resources and was deprived of its forests and so-called unoccupied lands, while each individual tribal member found himself the owner of a small area that he was unable to defend and whose alienation was only a matter of time depending on his personal circumstances. As a consequence, the native populations at some places were rendered landless and evicted of all command over own land.

Post-Independence, India adopted sectional policies for tribal development and upliftment. The trajectory of approach to the tribes took two distinct pathways. On one hand the North East States who got isolated even during the freedom struggle and designated as the excluded regions by British were given protection under the Sixth Schedule[10] of the constitution comprising of the States of Assam, Meghalaya, Tripura and Mizoram. In this regard, the North-East Frontier Agency (NEFA) was created which, upheld the protection of tribal land and language, promoted development of the tribals on their own genus, encouraged participation of tribals in local administration and discouraged over administration in tribal areas. NEFA was first applied in the remotest areas of northeast India, and in 1987 these areas were known as Arunachal Pradesh. Further, in 1995, It was renamed as North Cachar Hills Autonomous Council (NCHAC). Other legislative

9. A Village accountant or Patwari, Talati or Lekhpal, is an administrative government position in rural areas of the Indian subcontinent. Introduced during the early 16th century, it was maintained by the British Raj.

10. The Sixth Schedule of the Constitution provides for the administration of tribal areas in Assam, Meghalaya, Tripura and Mizoram to safeguard the rights of the tribal population in these states. This special provision is provided under Article 244(2) and Article 275(1) of the Constitution, passed by the Constituent Assembly in 1949. It was formulated to provide the limited autonomy to the tribal regions of North-East and was based on the reports of Bardoloi Committee.

measures were introduced by the Indian government post-independence like Article 46 of the constitution emphasized the promotion of educational and economic upliftment of the tribal people. At the same time provided for their protection from exploitation, the application of fundamental rights was amended for providing power to the governor of the states with tribal areas to amend laws for the protection of tribal interests, reservation of seats in the legislature as well as administration, setting up of Tribal Advisory Councils in all states and appointing a Commissioner for scheduled tribes to investigate whether the safeguards provided to the tribal people are reaching as targeted. This development is presently beyond the purview of the present paper.

As regards to the plain lands consisting of the present states of Odisha, West Bengal, Jharkhand, Bihar, Madhya Pradesh, Chhattisgarh all followed distinct trajectory of development, however, there remained a commonality in this growth trajectory, viz, they were economically and educationally very backward as against the tribals of North East and they were living in acute poverty and although being located near the mainstream society. Taking a close look into these tribes located in the plain lands it can be seen that due to the traditional community's collocation with a powerful formal administration and the extension of new laws with accompanying complicated procedures for their execution, adjudication, etc., exceeding their traditional forms, a new scenario was established in the tribal lands. For a number of reasons, the dynamics of change in the tribal areas were very different from those in the other rural sections of the nation. First off, there is very little stratification in the tribal community, which is more or less egalitarian. As a result, no segment of the tribal society was developed enough to benefit from the modern economic system while its foundations were being established in far-off metropolitan areas at the beginning of the twentieth century. Furthermore, these societies stayed beyond the purview of the market economy for a considerable amount of time due to the difficulty of accessing their habitat, and their self-sufficient economies were unaffected by these new developments.

Any region's traditional tribal economy is a mashup of several components related to various historical periods of development. This covers activities like gathering, hunting, established and mobile agriculture, pastoral work, and animal husbandry. The majority of the non-agricultural enterprises are dependent on substantial utilisation of the land under their control with variable degrees of clearing and tree cover. This finely balanced system has been upset by the expropriation of non-agricultural lands, particularly the forests, which were a significant source of their subsistence. The State's expropriation has gradually had an effect on the nation's economy and people's well-being. The State's authority was fictitious at first. The scenario changed, though, when the forest officials arrived on the scene. For a while, they were permitted to carry on with their customs as the new system made its way into uncharted territory where the populace's cooperation

was crucial. The indigenous people could only use the forests for a consideration, whether that consideration was lawful or not, as the system gained momentum. As the State started to appreciate the worth of the forest resources and realised that it was possible to exploit them to increase revenue, the forests were better controlled. Tribal people had to provide some services in exchange for the usage of the forests, which was strictly monitored. For instance, they must render their service even during the busiest time of year where they needed time for agriculture. They were expected also to offer the visiting officials with facilities. The distinction between the beggar and this required labour for token compensation was somewhat hazy. The tribal member had some negotiating power because he still had the option of relocating to the more remote regions, which were not under the administration's actual jurisdiction. Even still, he was content with his meagre earnings because he had few needs for himself personally and had no idea what the true value of his labour or the products, he helped manufacture were.

When the natural forests were replaced by commercial plantations and were put under scientific management, the relationship entered its second phase. This made the processes of deprivation more apparent. First, the change in fauna and plants entirely destroyed the foundation of their traditional economy in the natural forest. Instead, he could anticipate some part-time, low-paying work in the new plantations. The forestry programmes had to be planned on an inexpensive scale, which called for a lot of labourers to work together temporarily in one location. Due to the small population and limited time that people in these locations could spare from their regular agricultural job, it was unable to fulfil this requirement locally. In order to run profitable plantations, foreign labour was thus introduced. After working in plantations for a while, they were drawn to the opportunity to establish a foothold in the vast terrain with the gullible, illiterate people who, as was previously mentioned, had shaky control over it. At this point, it is not essential to go into depth about these changes. But what happened next was expected. The great system's pathetic representatives actively assisted and even orchestrated the extensive expropriation of tribal territory through trickery and coercion. The tenuous connection between the community and the forests was finally severed with the advent of corporate administration of forests on commercial lines, leaving indigenous people completely and totally deprived of their access to their forest resources. In addition to acting as business managers, the new Forest Corporations have given their employees the authority to enforce the law, which was previously only exercised by forest officials.

It may be argued here that deprivation was omnipresent in vast sections of the country with a and some sections of the country were already living in sub human conditions. However, there is a major difference between the two circumstances.

First, going by standards of well-being both subjective as well as objective. The tribes

were contended people having their own culture, deities, customs, food and indigenous knowledge living in harmony with nature. Their existence was in accordance with their natural essence absolutely in harmony with others and the environment. The larger world knew of their presence and the co-existence was peaceful. They had a distinctive understanding of what was good for them and had the mechanism to achieve it. Their goals of life were different and they had the ability to realize their human potential and plan for life. Their society was egalitarian in contrast to the immensely stratified social system of contemporary Indian society. And in their own abode in harmony with nature they were leading lives which fulfilled the basic objectives of well-being both subjective as well as objective.

Second, due to the trajectory of development primarily in British era and continued in the post-Independence era, these people were thrown out of their peaceful existence and the self-sufficient society suddenly became destitute in their own forest and in their own nation.

Third, their penury was not equivalent to the lower caste or lower-class people who were part of a vicious circle and were accustomed to the ways of the society and deprivation and squalor.Thus, the process of deprivation was traumatic for the community in tribal areas because they had never experienced it before.

Fourth, the non-tribal migrant groups alone made up the wealthy pole in the emerging bipolar economy of the tribal areas, while the processes of deprivation were pushing the tribal communities steadily towards the other pole. The affluent segment has close ties to the modern national economic sectors, including the new political, administrative, economic, and legal institutions. In actuality, this organisation is acting as a new system's outpost in the underdeveloped regions. It lies outside the conventional village authority's sphere of control, which is rendered entirely powerless in the face of the new power elite.

Fifth, the tribal people due to their traditional ways interacted with the non-tribal society on a limited scale. Thus, while the so called poor and marginalised were sympathetic for the sufferings of the fellow beings. The tribals remained in the oblivion for much longer in their pain and sufferings.

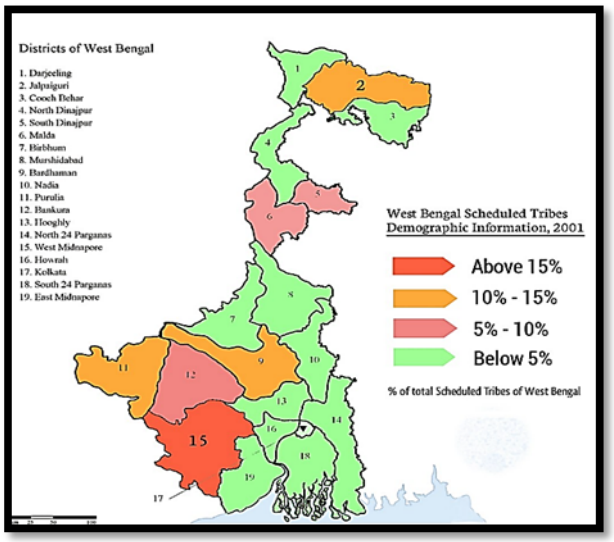
Sixth, the tribals due to their avoidance and ignorance of the functioning of the larger society were more vulnerable to exploitation. Moreover, what increased their susceptibility to exploitation was that not only did they have traditional know how of tapping resources but also were conversant with the inaccessible regions mostly endowed with natural resources.These distinct characteristics were instrumental in shaping the societal position of the tribes which was quite different from the other marginalised sections.

Moving on from the positioning of the tribes in society, as delineated above, with regard to West Bengal,the historical developments were not quite different from the rest of India. As also it should be understood that the modern-day geography of the States was quite different from past. Moreover, there were several tribes and to be fair each tribe has a unique story to tell of their development experience, which presently is beyond the scope or purview of this paper. History of tribes in West Bengal, includes, nothing but the narrative of their ongoing struggle with one another. It provides proof of the fact that several groups of people have migrated repeatedly from outside of their contacts with others who have different cultural backgrounds the original settlers Consequently, waves of such migrations eventually created a compromise with the indigenous people, partly by annihilation of the recalcitrant components, as well as by the varying blending techniques of the rest, for a range of socioeconomic purposes, and a long-lasting assimilation was the outcome.

IV. Present Scenario:

In West Bengal, Tribal population is 52,96,963 as per Census 2011[11], which is about 5.8% of the total population of the State. Tribal population of West Bengal constitutes about 5.08% of total Tribal population of the Country. More than half (51.8%) of the state's ST population is made up of Santals. The other significant STs with sizable populations are the Oraons (14%), Mundas (7.8%), Bhumij (7.6%), and Kora (3.2%). Together with Santal, they make up about 85% of the state's ST population. According to the 2001 census data, the Lodhas, Mahalis, Bhutias, Bedias, and Savars are the remaining STs, and they have a population of 1% or more. Tribal communities are present in all the Districts of the State. Due to the inclusion of the major groups Tamang and Limbu in the population, the population of ST rose after 2002[12]. Higher concentration of Tribal population is seen in the Districts like Darjeeling, Jalpaiguri, Alipurduar, Dakshin Dinajpur, Paschim Medinipur, Bankura and Purulia.Bauls, Bhuyiya, Santhal, Oraon, Paharia, Munas, Lephcas, Bhutiyas, Chero, Khariya, Garo, Magh, Mahli, Mru, Munda, Lohara and Mal Pahariya are amongst the popular tribes in West Bengal. mong these tribes, Toto, Birhor and Lodha have been notified as **PVTGs** (Particularly Vulnerable Tribal Groups) in terms of backwardness in different development indicators. Earlier they were termed as PTGs (Primitive Tribal Groups).**Toto** and Birhors are predominantly residing in Jalpaiguri & Purulia Districts respectively whereas the Lodhas are mostly found in the Paschim Medinipur District. The distribution of the tribes is shown in the following figure:

11. https://censusindia.gov.in/
12. adibasikalyan.gov.in



In this section we will look into some vital indicators of social, economic and physical wellbeing of the tribes in aggregate in case of the state of West Bengal.

Table I: Literacy rates

District	Literacy for all social groups population				Literacy for S. T. Population			
	Total literacy rate in all social groups (%)	Male (%)	Female (%)	Gap within Male & Female (%)	TotalS.T. literacyrate (%)	S. T. Male literacy rate (%)	S.T. Female literacy rate (%)	Gap within Male & Female (%)
Bankura	62.95	71.82	53.69	18.12	59.37	72.93	46.01	26.92
Birbhum	62.13	67.83	56.16	11.67	47.78	57.57	37.67	19.9
Barddhaman	69.27	74.94	63.26	11.68	54.74	65.41	44.22	21.19
Dakshin Dinajpur	65.97	71.1	60.6	10.5	57.02	65.54	48.5	17.04
Darjiling	72.11	77.42	66.63	10.79	74.26	81.5	67.16	14.34

Hooghly	75.00	79.84	69.96	9.88	60.67	71.39	50.29	21.1
Howrah	75.24	78.81	71.41	7.4	70.86	77.08	64.23	12.85
Jalpaiguri	65.3	71.31	59.00	12.31	58.7	67.93	49.51	18.42
Cooch Behar	66.6	71.95	60.92	11.03	68.89	74.82	58.35	16.47
Kolkata	81.31	83.22	79.19	4.03	82.06	86.81	76.57	10.24
Malda	53.54	57.37	49.28	8.09	46.86	55.83	37.86	17.97
Murshidabad	58.21	61.25	55.04	6.21	51.34	59.15	43.32	15.83
Nadia	68.18	71.82	64.34	7.48	57.75	65.35	49.98	15.37
North 24 Parganas	77.35	80.71	73.8	6.91	64.78	72.9	56.4	16.5
Medinipur (Purba & Paschim)	74.08	79.88	67.97	11.91	62.15	72.88	51.27	21.61
Purulia	56.69	68.2	44.43	23.77	53.86	67.84	39.77	28.07
South 2 4Parganas	69.16	74.6	63.44	11.16	59.72	69.03	50.17	18.86
Uttar Dinajpur	50.72	56.27	44.78	11.49	43.76	51.96	35.48	16.48
Total	77.08	81.69	70.54	11.15	57.92	68.16	47.71	20.45

Source:Census of India 2011 and data of B C W Govt. of WB

Table 2: Literacy RatesofinWestBengal/India

Sl.No	Area/Location	Rural		Urban		Total	
		Male	Female	Male	Female	Male	Female
1	India	66.8	46.9	83.2	70.3	68.5	49.4
2	WestBengal	67.2	46.2	78.4	64	68.2	47.7

Table 3: Literacy rates among Major tribes

Literacy Rate of 10 Major S. T. Community in West Bengal			
Name of S.T. Community	Male	Female	Total

Santhal	57.3	27	42.2
Orao	55.4	31	43.4
Munda	54	27.7	41
Bhumij	61.6	29.1	45.6
Kora	58.4	28.1	43.4
Lodha	46.8	22.5	34.8
Mahali	55.6	26.3	41.1
Bhutia	80.2	65.2	72.6
Bedia	61.7	34.6	48.4
Savar	36.4	16	26.3
All Total	57.4	29.2	43.4

Source: census 2011, West Bengal

In 1961 the literacy rates among the tribes of India and West Bengal were 9% and 7% respectively; which rose to 59% and 58% in 2011.Table 1,2 and 3 reflect upon the literacy rates of West Bengal. It may be seen that while there is not much differences in gross literacy rates of India in comparison to West Bengal both at rural as well as urban levels, yet as it is reflected in Table 1 there persists inter-district differences in gross literacy rates in all social groups as well as within the Scheduled Tribes where the district Kolkata has 82.06% literacy rate while Uttar Dinajpur 43.76%. The gap in the male-female literacy rates is maximum in the district of Purulia about 28% while minimum at district of Kolkata about 10%. Even within the major tribes it can be seen from Table 3 that while the literacy rate is 72.6% for Bhutia it is about 26.3% for Savars. Significant gender gaps in literacy levels are observable in all the tribal groups.This showed the uneven pattern of literacyrates within the tribal groups of the State along with inter district disparities in gender gaps and literacy rates.

With regard to economic attainment 35% of the tribes reside below Poverty Line; a life often marred by lack of quantifiable conditions and lack of access to community utilities and services. There also remains huge interregional disparities and even within a region the rates of poverty are different within various tribal clusters. The isolated habitats of some tribes often compound their problems. The tribal community lags behind the average on several health indicators, with women and children being the most vulnerable. Total Fertility Rate is 2.5% and only 26% complete their ANC visits. The children having full immunization coverage is only 56% which reflects in IMR as 44.4% and the

Under-five Mortality Rate as 57.2%.Tribal population suffers quadruple burden of disease; communicable diseases, non-communicable diseases, malnutrition, mental health, and addictions. 8.6% tribal population constitutes 30% of all cases of malaria. The estimated prevalence of Tuberculosis per 100,000 was 703 cases against 256 in non-tribal population. The proportion of new leprosy cases was found to be 18.5%. The percentage of children underweight is found to be 38% and about 70% under-five children are anaemic. It has been reported that malnutrition and child deaths are in spurts, reported mostly during rainy seasons. Almost 50% adolescent ST girls are having BMI less than 18.5 and about 65% tribal women 15–49 years age suffer from anaemiaas against non-tribal 47%, a vicious cycle. More than 72% tribal men 15–54 years of age use tobacco and more than 50% consume alcohol against 56% and 30% non-tribal men, respectively.

Regarding health care seeking behaviour, rough estimates show about 6% of tribes exclusively use the allopathic type of treatment that too 80% of which is out-of-pocket expenditure, and 49% of tribes use traditional measures of treatment mainly provided by local quacks. It was also reported that 21.2% of women considered their illness not so serious and can be cured by home remedy or by traditional therapy. To add to the burden of disease, the healthcare infrastructure and the number of specialists posted in tribal areas is worse than scarcity. 27% Health Sub-Centres (HSCs), 40% Primary Health Centres (PHCs), and 31% Community Health Centres (CHCs), lacking penetration of primary healthcare services. In India, across 10 states with sizable tribal population, the percentage surplus/deficit of healthcare providers in tribal areas is found to be 64% ANMs at HSCs and PHC, -33% Allopathic doctors at PHC, and -84% specialists at CHC which depict the huge deficiency of specialist doctors and thus quality healthcare, lacking Human Resources for Health (HRH) in the existing primary healthcare system. This is the state of healthcare delivery system in tribal areas despite having more than 50% and 66% of tribal population being dependent on public health system.

Census of India 2011 for the state of West Bengal reveal that 38% of total tribes avail banking services of which 35% are residing in rural areas and about 60% in urban areas of West Bengal. 33% of the total population (35% rural and 15%) do not have any assets like TV, radio, scooter, cycle, laptop with and without internet facilities, mobile phone etc. About 50% of the ST household still depend upon firewood for cooking in rural areas. About 60% of the house hold do not have access to latrines and about 48% of the household have sources of drinking water which are far away from their residence.

In this section we highlighted the indicators of well-being and the tables discussed above shows that within the social groups the individual performance of the tribes is worse off. Moreover, the basic indicators of education, health, infrastructure, health care seeking behaviour, condition of living, employment etc reveals that by any standards

the tribes are surely lacking behind the general population. In the following section we would try to look into the political economy of their development and the findings of the secondary data.

IV. Locating the Problem

In the light of the above, with specific focus on the tribes of West Bengal what we see is that the socio-economic conditions of the tribes going by the general indicators are worse off than other social counterparts. Education and job wise a miniscule percentage of people could make use of the reservation and other policies of the Government and large sections still remain in the fringes. Moreover, unlike the scheduled caste or other vulnerable groups of the society the development or wellbeing of the tribes are delicately balanced. Education, health and amenities of objective well-being of the main stream society are on one hand are positive changes and markers of assimilation in the greater society, while on the other hand it also signifies ironing out the uniqueness as a price of this assimilation. Another very important aspect of this assimilation process for the late entrant would, in the class hierarchy of the society, placed in the lowest echelons. Now in the given historical back ground and dynamics of development of the tribes this would prove disastrous. The notion of tribe encompasses a long-established traditional way of life, rich knowledge base, community living and diverse cultural tradition.

Stepping back to the seminal question of well-being and development that we started with, where should we place the tribes? And given the political economy of development of the tribes what should be the approach to the development of the tribes, are the two major questions that arises. Let us first look into the concept of development. The process of empowering individuals to realise their own goals is the ultimate goal of development. Hence, it must be concerned with changing society as a whole by integrating its economic, social, political, and administrative dimensions in order to achieve overall, balanced upward change.Development as understood today is a multidimensional concept taking into account the multilevel, multifarious interaction and causality within the societal, cultural, political, environmental, sociological, psychological as well as economic dimensions. Hence it encompasses every aspect of human activity. Moreover, it is widely recognised and accepted thatdevelopment can co-exist at various levels within a society. The dualism of a developed cores and underdeveloped fringes are evident commonly.This is the main reason why the tribals in general could not get assimilated in the development paradigm. The constructions of roads and dams further added to their misery in form of eviction from their land and destitution.The vicious poverty traps and social inequality shaped by their historic journey through out ages kept them alienated from financial or education or societal inclusion. The divide of skilled and unskilled educated and not-educated remained and got rein forced through generations and the kind of jobs or employment opportunities left were mainly as casual informal workers. The incomplete assimi-

lation in the main stream society robbed away their identity in one hand on the other hand forced them to get accustomed to fit in the lowest rungs of the society. The vicious cycle of poverty trap continues to tighten its grip. The poverty and hunger are so internalised that in the local dialect mostly these two are not even differentiated.

Secondly, what can be seen is that traditionally the systems of the tribes call for egalitarian society and community participation. However, with development, it is the individual who gets highlighted and focused upon. In this view the strong points of community living become a burden for the tribes where the sufferings of the fellow beings are shared and the big push of coming out of the poverty trap is absent. The sufferings are so enormous throughout their life cycle that a process of de humanisation takes place. The result of the process is seen in significantly less life expectancy at birth than the fellow citizens of the country. A secondary but significant impact is lack of respect for what they are. The lack of dignity has a long bearing psycho-social impact on the perception of the tribal people regarding themselves which again adversely effects their social positioning.

Conventionally these tribes could be considered as the people of the soil who have strong bonds with the forest and nature. The age-old wisdom as agriculturist, traditional healers, forest dwellers have a long chain of acquired wisdom following through generations. This is actually a storehouse of knowledge and wisdom and accounts for the rich heritage. However, the intergenerational transfer of poverty and destitution acts as a deterrent to the preservation of such precious knowledge. Moreover, the demoralising effect which abject poverty brings with it robs them of dignity and freedom.

Coming back to the concept of wellbeing it can be seen the existence in harmony with others and the environment is violated at the onset with the dismantling of the natural ways of living of the tribes. The incidence of poverty and deprivation form a lopsided view of what is good and disturbs the foundation of understanding of what is good for oneself. The life goals too, get distorted, focused on the basic survival and hence adversely affects the willingness to achieve something better. The robbing of dignity and self-esteem hampers the one's the ability to realize human potential and plan for life. And ultimately a society instead of empowering people to fulfil the above stated positions as described in the introduction leads to magnifying of the gaps in social hierarchy and exploitation.The desirable change that development entails hence remain elusive. More specifically in the context of tribes in West Bengal the desirable change in some elements pertaining to well-being at a community level is still not satisfactory. Despite a number of policies and programmes a definite plan or prediction targeted for materialising a specific goal of a community is absent. Lastly, the perception of the general public and administration of being at best sympathetic without understanding the rootedness of the problem is specifically hindering the development process.

V . Conclusion:

Primarily it comes out of the foregoing discussion is that the tribes, based on their developmental history, cannot be considered as a homogenous group. Thus, the administrative convention of generalising tribes as a single identifiable category will lead to anomalous policy framing, which will not attain its goals as well as the desired sections would not attain the outcome. Even within the tribes of a particular location it is very important to distinguish within the tribes who are forest dwellers and those who are agriculturist. Moreover, the developmental stage where a particular tribe is located has to be located.

The conventional notion of bracketing indigenous as backward and something widely accepted and commonly in use in conventional society to be advanced has to be done away with. For well-being to be omnipresent across the various sections of the society the societal needs and individual needs has to be focussed upon. This entails acknowledging the age-old wisdom, stopping stereotyping and assimilation of cultural and traditional practices into the policy framing. Herein, a very important factor would be to include them into the process of framing the policies. Their inclusion as a corollary will only be possible when there is adequate representation of the tribes from within their communities in politics, diverse jobs and education. Thus, inclusion will not be an easy process and to break the barriers, we have to plan education, and its outcome has to be analysed in the context of particular group. It may be seen that the barriers to education may at times be linguistic, at times cultural, at times economic and at times may be a mix of these. Proper ground level extensive research on small groups will bring out the specificities of the ground reality.

Lastly, the general tendency is of viewing the issues of tribals in a State as a 'problem'. The word problem is in itself is a biased word with embedded negative connotation. The attitude has to change to look at them as custodian of rich cultural heritage and age-old wisdom acquired through their history of struggle for survival, and it is then that the general perception of a knowledgeable powerful section working for upliftment of the down trodden will be replaced by a feeling for working with and for a fellow citizen for benefit of all. To conclude we may say that there are dangers of a single story[13] as regards to the tribes of India and even West Bengal. And whenever we premise any study to look into their development or well-being, one has to be cautious of the risk of the single story, the one perspective, which may lead us to default assumptions, conclusions and decisions that may be incomplete, and may lead to misunderstanding. Functioning from the context of a single story can prevent one from a more multifaceted, nuanced view of a situation.

---

13. Chimamanda Ngozi Adichie

Thus, their side of the story needs to come out and understood in a proper frame.

BIBLIOGRAPHY

Acharya, S. (2021). The Socio-Psychological Study of Santhal Tribe of West Bengal And The Effect Of Smoking And Drinking On Their Daily Living. Vol. 10 No.10.

Ayub, M. (2012). Tribal Development Scenario in West Bengal- A Study of Jamalpur Block of Burdwan District.

C.R. Magesh, Naaz Rizvi, Indigenous Knowledge Of Santhal Tribes Of Dalma Wildlife Sanctuary, Jharkhand, India, International Journal Of Scientific Research: Volume-6|Issue-10|October-2017.

Chakraborty, Parikshit. (2020). Tribal Educational Status in Paschim Midnapore District. 5

Chakraborty, U., Chowdhury, S.D., Dutta, G., & Ghosh, T. (2008). A Comparative Study of Physical Growth and Nutritional Status in Santhal Children of Ghatsila and Bolpur.

Das S., Bose K. (2015). Adult Tribal Malnutrition in India: An anthropometric and socio-demographic review. *Anthropological Review*, 78(1), 47–65.

Dhargupta A., Goswami A., Sen M., Mazumder D. (2009). Study on the Effect of Socio-Parameters on Health Status of the Toto, Santhal, Sabar and Lodha tribes of West-Bengal, India. *Studies of Tribes and Tribals*, 7(1), 31–38.

Guha, S., & Ismail, M. D. (2015). Socio-cultural changes of tribes and their impacts on environment with special reference to Santhal in West Bengal. *Global Journal of Interdisciplinary Social Sciences*, *4*(3), 148-156.

https://archive.nyu.edu/bitstream/2451/36746/2/Tribal%20Committee%20Report%2c%20May-June%202014.pdf

Khanda, S. (2018). Educational Status of Tribal Women in West Bengal. *International Journal of Research, 5*, 1612-1624.

Majumdar, K., &Chaterjee, D. (2022). Perception of Subjective Well-being of the Lodha Tribe in West Bengal. *Contemporary Voice of Dalit*, *0*(0).

Manna, P. K. ., Debasis , D., & Ghosh, D. . (2011). Knowledge Attitude and Practices for Antenatal Care and Delivery of The Mothers of Tea Garden in Jalpaiguri and Darjeeling Districts, West Bengal. *National Journal of Community Medicine*, *2*(01), 4–8.

Mishra et al. (2008). Sexual Risk Behaviour Among Migrant Tribals Living In Urban Slums of An Eastern India City: Implications On The Spread of HIV. *Collegium Antropologicum*, 32(1), 1–4.

Mollah, U., Bisai, S., & Nandi, D. K. (2022). Nutritional Status of Tribal Preschool Children Based on Clinical Assessment In Paschimanchal, West Bengal, India. International Journal of Health Sciences, 6(S2), 8113-8120.

Mukherjee, Nirmalya & Pal, Biswajit & S., Nagarathinam,. (2014). Maternal Health Status In Tribal Areas of Bankura District of West Bengal, India. International Journal of Development Research. 4. 1578-1583.

Pal, Biswajit & Goswami, Arunasis & Biswas, Subhasish. (2015). Socio-Economic Status of

Some Selected Tribes In West Bengal, India. International Journal of Development Research. 7. 14292-14295.

Rana. K., Sarkar. M, Das S. and Gain. M. R. (2020). Living World of the Adivasis of West Bengal—An Ethnographic Exploration, The Asiatic Society, Kolkata.

Sarkar, A. K., & Singha, S. (2019). Factors Influencing Health of The Santhals: A Study of Selected Villages Of Birbhum. *The International Journal of Community and Social Development*, *1*(1), 58–74.

Sarkar, A. K., & Singha, S. (2019). Factors influencing health of the Santals: A study of selected villages of Birbhum. *The International Journal of Community and Social Development*, *1*(1), 58-74.

Surajit Mal, Sahina Khatun. The Status of Women Among the Tribal Communities of West Bengal, India. Research Journal of Humanities and Social Sciences. 2022;13(1):1-1. doi: 10.52711/2321-5828.2022.00001.

Taraphdar, P., Vasudeva, A., Sheikh, N. A., Bharti, A., Chanu, A. R., Yadav, S. L., & Sahu, S. (2022). Understanding health care seeking behavior in a tribal setting in West Bengal. *Journal of Family Medicine and Primary Care*, *11*(4), 1443.

Xaxa, V. (1999). Tribes as indigenous people of India. *Economic and political weekly*, 3589-3595.

Xaxa, V. (2008). *State, society, and tribes: Issues in post-colonial India*. Pearson Education India.

Artha Beekshan, Volume 32, No. 1 & 2, June and September 2023.

Transforming Indian Agriculture for Farmers' Welfare: Reimagining the Reforms Agenda

Debesh Roy[1]

Abstract

India's aspiration of becoming a $10 trillion economy by 2035 would be a critical milestone on its journey towards attaining the status of a developed economy.For the economy to grow at 7-8 per cent consistently for the next 25 years, it is imperative that the agriculture sector should grow annually at 5 per cent.Effective implementation of comprehensive agricultural reforms, with a high priority accorded to agri-marketing reforms, could lead to sustainability of Indian agriculture, transforming the sector to mitigate agrarian distress. An enabling environment for agricultural sustainability needs to be created through massive investment in irrigation, with a focus on water-use efficiency, enhancement in total factor productivity of crops, tech-driven agriculture, climate-smart agriculture, creation of rural infrastructure, development of efficient agri-value chains, and promotion of agri-exports. Reforms should empower small and marginal farm holders by transforming subsistence farming to farm enterprises with farmer producer organisations (FPOs) as change agents, enabling farmers to come out of their VUCA (volatility, uncertainty, complexity and ambiguity) world.

Key words: Agriculture Reforms, Farmer Producer Orgnisations, Tech-driven agriculture, Agri-value chains, Rural infrastructure

JEL Classification Codes: O13, Q13, Q16, Q17

I am indeed honoured to be invited by the Bengal Economic Association to deliver thislecture at the 43rd Annual National Conference of the Association. I sincerely thank Prof.Biswajit Chatterjee, President of Bengal Economic Association, and the organisers for the invitation.

I. Introduction

India's aspiration of becoming a $10 trillion economy by 2035 would be a critical milestone on its journey towards attaining the status of a developed economy. While an export-led manufacturing and services sectors would be the major growth-drivers of the

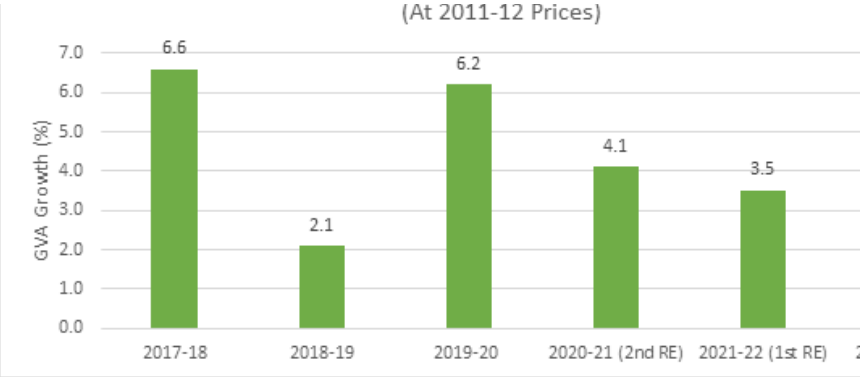
1. Dr Debesh Roy is Chairman, Institute for Pioneering Insightful Research & Edutech Pvt. Ltd. (InsPIRE), Greater Noida, U.P., India. (Email: roydebesh0203@gmail.com) Website: https://inspire-solutions.in

economy, the growth process needs to be supported by a tech-driven and reformed agriculture sector. For the economy to grow at 7-8 per cent consistently for the next 25 years, it is imperative that the agriculture sector should grow annually at 5 percent.

I will deliberate on critical issues and challenges faced by the agriculture sector, and set a reforms agenda for transforming the sector for managing the VUCA (volatility, uncertainty, complexity, ambiguity) world of farmers to mitigate agrarian distress. I will also focus on underscoring a thrust on agri-marketing reforms, agri-exports, promoting technology-driven agriculture, building rural infrastructure, developing efficient agri-value chains, and empowering small and marginal farm holders by transforming subsistence farming to farm enterprises with farmer producer organisations(FPOs) as change agents.

II. Indian Agriculture: Issues and Challenges

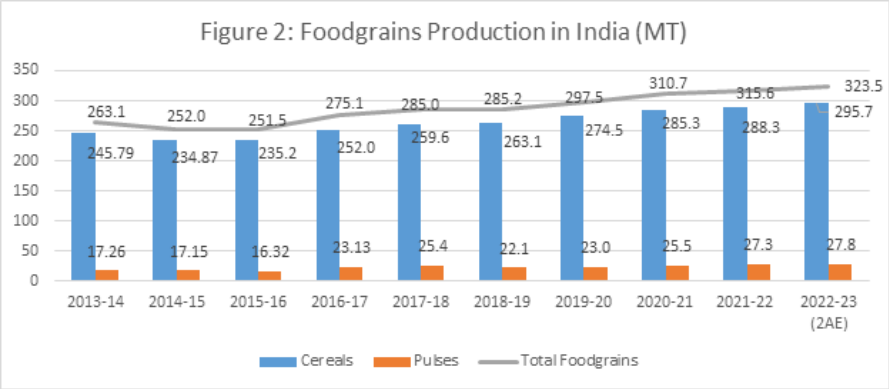
The criticality of agriculture for sustainable and inclusive growth of the Indian economy can be gauged from the fact that, the sector provides employment to about 45.6 per cent of the total workforce in India, but contributes only about 15.1 per cent (2022-23) to the country's real Gross Value Added (GVA)[2]. India's agriculture and allied sector has been growing at an average annual growth rate of 4.3 per cent during the last six years. The sector has shown resilience during the pandemic period, growing at 4.1 per cent, 3.5 per cent and 3.3 per cent during 2020-21, 2021-22 and 2022-23, respectively (Figure 1), contributing positively to the country's overall growth. The CAGR of the sector during the last ten years stood at 4.1 per cent, which is just less than a percentage point below the desired growth rate of 5 per cent, required to significantly improve farmers' income and welfare, while supporting India's high growth potential.



Source: *National Accounts 2022*, and Press Note on Second Advance Estimates of Annual National Income, 2022-23, NSO, Ministry of Statistics and Programme Implementation, GoI

2. Based on data accessed from Press Note on Second Advance Estimates of Annual National Income, 2022-23, National Statistical Office Ministry of Statistics & Programme Implementation, Government of India, 28February 2023.

India is expected to achieve a record foodgrain production of 323.5 million tonnes (MT) in 2022-23, which is 2.5 per cent over the 2021-22 figure, and 8.7 per cent above that of the pre-pandemic year 2019-20 (Figure 2). During the ten-year period 2013-14 to 2022-23, foodgrain production grew at a CAGR of 2.9 per cent. Production of cereals and pulses are estimated to post record highs at 295.7 MT and 27.8 MT, respectively, in 2022-23. During the period under review, the CAGRs of cereals and pulses are estimated at 2.7 per cent and 6.0 per cent, respectively.



Source: Second Advance Estimates of Production of Foodgrains for 2022-23, Directorate of Economics and Statistics, Ministry of Agriculture and Farmers' Welfare, GoI

India is expected to produce a record 400lakh tonnes (LT) of oilseeds in 2022-23 (Table 1), having grown by 5.4 per cent over the previous year.The CAGR of oilseeds production during the ten-year period 2013-14 to 2022-23 is estimated at 3.7 per cent. However, during the latest five-year period (2018-19 to 2022-23), the CAGR is estimated at an impressive 6.3 per cent. Among commercial crops, sugarcane production is estimated to grow by 6.7 per cent to touch a record 4,687.9 LT in 2022-23 (Table 1), which is also 17.2 per cent higher than the last five years' average. The CAGR of sugarcane during the ten-year period is estimated at 3.3 per cent. Cotton production is estimated to grow by 8.4 per cent to 337 lakh bales in 2022-23 over the previous year (Table 1). However, the CAGR of cotton production during the ten-year period (2013-14 to 2022-23) was -0.2 per cent. The production of jute and mesta is estimated to decline by 1.0 per cent compared to the previous year to 100.5 lakh bales (Table 1).

Table-1

Production of Oilseeds and Commercial Crops

Commo-dities/Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23 (2AE)
Oilseeds (LT)	327.49	275.11	252.51	312.76	314.6	315.2	332.2	359.5	379.6	400.0
Sugarcane (LT)	3521.42	3623.33	3484.48	3060.69	3799.1	4054.2	3705.0	4054.0	4394.3	4687.9
Cotton#	359.02	348.05	300.05	325.77	328.1	280.4	360.7	352.5	311.2	337.2
Jute & Mesta##	116.9	111.26	105.24	109.62	100.3	98.2	98.8	93.5	101.5	100.5

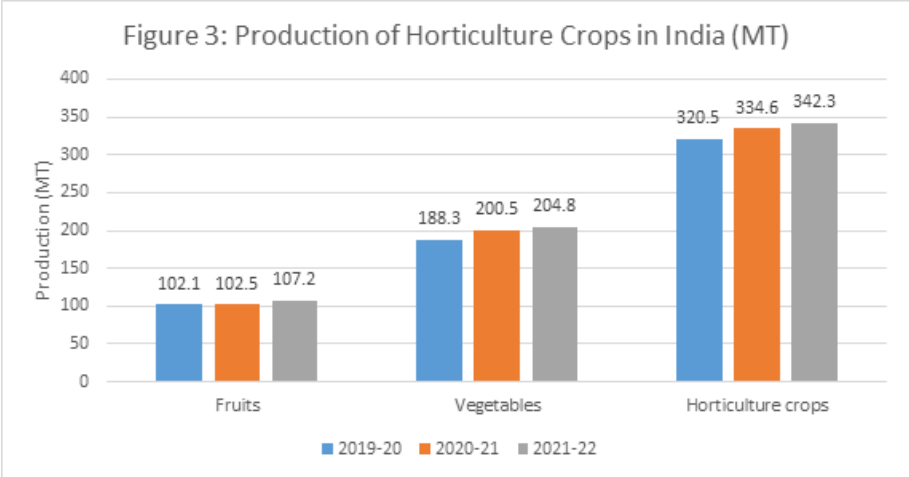
Lakh bales of 170 kgs. each

Lakh bales of 180 kgs. each

Source: Source: Second Advance Estimates of Production of Oilseeds and Commercial Crops for 2022-23, Directorate of Economics and Statistics, Ministry of Agriculture and Farmers' Welfare, GoI

Horticulture crops achieved an all-time high production of 342.3 MT[3] (Figure 3)in 2021-22 recording an increase of 2.3 per cent from the previous fiscal year. While the production of fruits increased from 102.5 MT in2020-21 to 107.2 in 2021-22, the production of vegetables increased from 200.4 MT to204.8 MT during the period under review. The production of major horticulture products, viz. tomato, onion and potato (TOP) displayed mixed results in 2021-22. While the production of tomato and potato declined by 4.5 per cent and 4.9 per cent, respectively, that of onion increased strongly by 17.4 per cent. A positive step towards promoting high-value horticultural crops has been announced in the Union Budget 2023-24 under the Atmanirbhar Clean Plant Programme that aims to boost the availability of disease-free, quality planting material, with an outlay of `2,200 crore.

3. Third Advance Estimates of Area and Production of Horticulture Crops 2021-22, 27 October 2022, Ministry of Agriculture and Farmers Welfare, GoI.



Source: Third Advance Estimates of Area and Production of Horticulture Crops 2021-22, 27 October 2022, Ministry of Agriculture and Farmers Welfare, GoI

India is self-sufficient in the production of foodgrains, horticulture crops and milk. However, Indian agriculture has long been suffering from structural problems, which need to be addressed urgently. Farmers in India, truly live in a VUCA world of volatile prices, uncertain rainfall and income, complex institutional mechanisms, restrictive laws, and policy ambiguities. Some of the critical issues and challenges confronting Indian agriculture are presented in the following sub-sections.

II.1: Small Size of Holdings and Low Income

About 86 per cent of operational holdings in the country are in the small and marginal categories, and the average size of an operational holding is only 1.08 hectare (ha). Due to fragmentation and disorganisation, majority of the small and marginal farm holders are unable to realise optimal value from their farming operations, resulting in agrarian distress.

The predominance of small and marginal holdings in India has resulted in inefficiency in cultivation and low average income of farmers.The Situation Assessment Survey of Agricultural Households in India (NSS 70th Round) had observed that agricultural households in the lower size classes of holdings were mostly dependent on wage/salary employment than farm business (cultivation and farming of animals) for their income. For households belonging to the lowest size class, farming of animals fetched moreincome than cultivation. Percentage share of income from cultivation/ farm business in the average monthly income increased with increase in land possession.

The same is corroborated by the findings of NABARD All India Rural Financial Inclusion Survey 2016-17 (NAFIS), which show that for households in the size class of less than 0.1 ha of land, wage labour was the most prominent source with the average monthly contribution of ₹3,508 (43.1 per cent) to the total income of ₹8,136, while cultivation contributed 7 per cent (₹566).On the other hand, the share of average monthly income from cultivation in respect of agricultural households with landholdings of greater than 2 ha was 51.6 per cent (₹7,572)(NABARD, 2018). The findings of NAFIS indicate a positive correlation between the average monthly income and size class of land possessed. The agricultural households with more than 2 ha of land earned almost twice the amount earned by those having marginal landholdings.

II.2 Low Agricultural Productivity

India is the largest producer of pulses and jute in the world, and the second largest producer of paddy, wheat and sugarcane. However, stagnation in the yield of major crops has been observed during the past decade. The average yield of rice increased from 2,461 kg/ha in 2012-13 to 2,809 kg/ha in 2021-22 (Table-2), at a CAGR of 1.8 per cent. Wheat experienced an increase in average yield from 3,117 kg/ha in 2012-13 to 3,507 kg/ha in 2021-22, at a CAGR of 2.1 per cent. The average yield of nutri-cereals increased from 1,617 kg/ha in 2012-13 to 2,247 kg/ha in 2021-22, at a CAGR of 3.7. Pulses experienced a CAGR of yield of 1.9 per cent in the period under review.

Table – 2

Yield of Foodgrains in India

(Kg/ha)

Crops	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	CAGR (%) 2012-13 to 2021-22
Rice	2461	2424	2390	2400	2494	2576	2638	2722	2717	2809	1.8
Wheat	3117	3075	2872	3034	3200	3368	3533	3440	3521	3507	2.1
Nutri/ Coarse cereals	1617	1677	1729	1579	1750	1934	1944	1991	2128	2247	3.7
Pulses	789	764	744	656	786	853	757	823	885	892	1.9
Total Foodgrains	**2129**	**2101**	**2070**	**2056**	**2129**	**2235**	**2286**	**2343**	**2394**	**2419**	**1.9**

Source: Handbook of Statistics on the Indian Economy 2021-22, RBI

Groundnut has witnessed a significant increase in yield from 995 kg/ha in 2012-13 to 1,758 kg/ha in 2021-22, at CAGR of 4.0 per cent (Table-3), mainly due to the introduction of improved varieties of seed. During the same period, the yield of soyabean declined from 1,353 kg/ha to 1,127 kg/ha, at a CAGR of -0.4 per cent. The yield of rapeseed and mustard increased from 1,262 kg/ha to 1,522 kg/ha at a CAGR of 3.3 per cent during the period under reference. Overall, oilseeds grew at a CAGR of 2 per cent.

Among commercial crops, the yield of sugarcane increased from 68,254 kg/ha in 2012-13 to 84,443 kg/ ha at a CAGR of 2.6 per cent (Table-3). Cotton has witnessed a stagnation in yield with a CAGR of -1.3 per cent during 2012-13 to 2021-22. The yield declined from 512 kg/ha in 2016-17 to 445 kg/ha in 2021-22. The benefit from the introduction of Bt cotton in 2009-10, has now fizzled out, and it is imperative to invest in new technology like the development of integrated crop management with a blend of drip irrigation and fertigation for improved water management, urgently. This is considered necessary as nearly 60 per cent of India's cotton area is under rainfed conditions. In a positive move, the Union Budget 2023-24 has announced that Government of India will adopt a cluster-based and value chain approach through Public Private Partnerships (PPP),to enhance the productivity of extra-long staple cotton. This will mean collaboration between farmers, state and industry for input supplies, extension services, and market linkages.The yield of jute & mesta too stagnated, with a CAGR of 1.2 per cent during the period under review.

Table – 3

Yield of Oilseeds & Commercial Crops in India

(Kg/ha)

Crops	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	CAGR (%)
Groundnut	995	1764	1552	1465	1398	1893	1422	2063	1703	1758	4.0
Soyabean	1353	1012	951	738	1177	1058	1192	921	976	1127	-0.4
Rapeseed & Mustard	1262	1185	1083	1183	1304	1410	1511	1331	1524	1522	3.3
Total oilseeds	1168	1168	1075	968	1195	1284	1271	1224	1247	1339	2.0
Sugarcane	68254	70522	71511	70720	69001	80198	80105	80497	83566	84443	2.6
Tea	2027	2121	2113	2176	2165	2210	2121	2138	2016	2112	0.0
Coffee	846	799	847	876	761	765	767	713	790	797	-1.1

Cotton	486	510	462	415	512	443	378	455	451	445	-1.3
Jute & Mesta	2281	2512	2473	2421	2585	2435	2508	2641	2542	2685	1.2

Source: Handbook of Statistics on the Indian Economy 2021-22, RBI

Source: Handbook of Statistics on the Indian Economy 2021-22, RBI

Yield of major crops in India also compare poorly with that of major producing countries in the world.Among ten leading producers of paddy, India ranks fifth (4,058 Kg/ha, against the world average of 4,631 Kg/ha) in terms of yield, comparing poorly against Japan (7,161 Kg/ ha), China (7,060 Kg/ha) and Indonesia (5,837 Kg/ha), in 2019[4]. India also ranks fifth in terms of yield (3,533 Kg/ha, against the global average of 3,543 Kg/ ha) among the top ten producers of wheat in the world, viz., France (7,743 Kg/ha), Germany (7,396 Kg/ha), China (5,630 Kg/ha), and Ukraine (4,57 Kg/ha)[5]. While India is the largest producer of pulses, it ranks ninth in terms of yield (697 kg/ ha, against the global average of 947 kg/ha) among ten leading producers, viz., Canada (2,050 Kg/ha), the USA (1,974 Kg/ha), Ethiopia (1,908 Kg/ha), China (1,793 Kg/ha) and Russia (1,610 Kg/ha)[6].

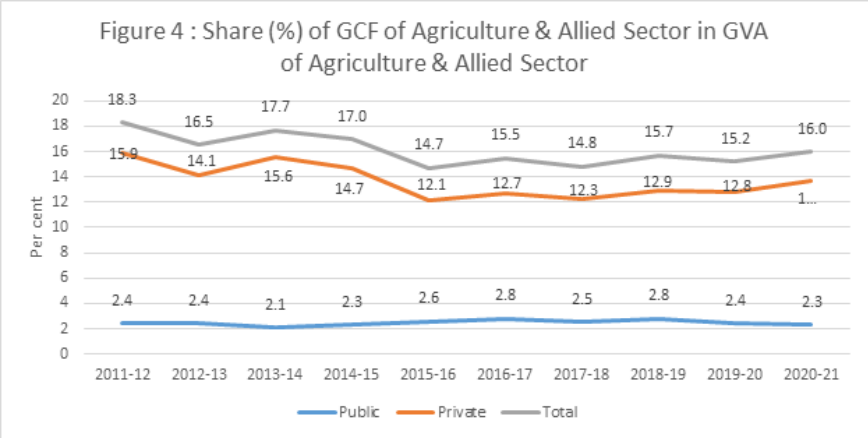
India has done well globally in terms of yield of sugarcane (80,105 Kg/ha, against the global average of 72,638 Kg/ha), and is ranked second among the major producers. While Australia is ahead of India at 81,981Kg/ha, the USA (78,398 Kg/ha), China (78,655 Kg/ ha), Brazil (74,657 Kg/ha), and Mexico (74,542 Kg/ha), had recorded lower yields in 2019[7]. However, India ranks sixth in terms of yield of groundnut in the world (1,422 Kg/ha, compared to the global average of 1,662 Kg/ha), and compares poorly against the USA (4,409 Kg/ha), China (3,781 Kg/ha), Argentina (3,455 Kg/ha), and Indonesia (2,304 Kg/ha).

II.3: Stagnant Capital Formation in Agriculture

Capital formation in agriculture is of critical importance for high and sustainable agricultural growth. The percentage share of Gross Capital Formation (GCF) in agriculture and allied sector in the Gross Value Added (GVA) ofthe sector, declined steadily from 18.3 percent in 2011-12 to 16.0 percent in 2020-21 (Figure 4), which is too meagre to address the issue of sustainability of Indian agriculture. While the share of private sector declined from 15.9 per cent in 2011-12 to 13.7 per cent in 2020-21, that of public sector remained

4. Source:Table 6.1, p382,*Agricultural Statistics at a Glance 2021,* Ministry of Agriculture & Farmers' Welfare, GoI (2022)
5. ibid
6.ibid.
7. Source:Table 6.1, p382,*Agricultural Statistics at a Glance 2021,* Ministry of Agriculture & Farmers' Welfare, GoI (2022)

stagnant during the last decade, ranging between 2.1 per cent and 2.8 per cent, with the 2020-21 figure at 2.3 per cent. Therefore, capital formation through rural infrastructure development assumes significance.Public sector investment in rural infrastructure/ other assets would result in high and sustainable growth of the agricultural sector, and could also crowd-in private sector investment. Therefore, with a vision of attaining the status of a developed economy by 2047, the Union Budget 2023-24 is growth-oriented, asset-creating and inclusive to develop better infrastructure and more productive jobs.Budgetary allocations for development expenditure and asset creation to various ministries dealing with agriculture, allied sectors and rural development, have been increased significantly (averaging 36 per cent) over the revised estimates for 2022-23.



Source: Table 1.9, *Agricultural Statistics at a Glance 2021*, Directorate of Economics & Statistics, Ministry of Agriculture & Farmers Welfare, GoI.

II.4: Climate Change and Agriculture

Climate change poses a major and growing threat to food security.Agricultural production is strongly affected by and a major contributor to climate change. While agriculture remains vulnerable to climate change effects—low productivity and food production are areas of concern—it also contributes 23 per cent to global GHG emissions. If emissions associated with pre- and post-production activities in the global food system are included, the emissions are estimated to be 21-37 percent of total net anthropogenic GHG emissions[8].Economic development, growing population and poverty reduction will lead to a higher demand for cereals, protein items, fruits and vegetables, triggering more intensive use of water and other natural resources. This will cause GHG emissions to spike(Singh and Gulati, 2023).

8. IPCC AR6 WR III

In India, emissions from agriculture account for approximately 14 percent of total India's GHG emissions (Singh and Gulati, 2023). However, it is the lead contributor of GHG emissions from agriculture sector amongst G20 countries as well as globally. Agriculture GHG emissions consist largely of nitrous oxide and methane. Agriculture is responsible for more than 70 percent of India's nitrous oxide emissions and almost 75 percent of India's methane emissions and together they accounted for 409 MT of carbon dioxide equivalent (MoEFCC, 2021). Of this, the largest share of 54.6 percent is from enteric fermentation by the livestock, 19.07 percent from agricultural soils, 17.49 percent from rice cultivation, 6.88 percent from manure management, and 2.17 percent from burning of agricultural residues (MoEFCC, 2021).

Paddy cultivation contributes about 15-20 per cent of the total anthropogenic methane emissions. Methods like System of Rice Intensification (SRI), drip irrigation, soil amendments, organic matter management, different tillage, rotation, and cultivar selection, can facilitate mitigation of methane emission. Research has shown that SRI reduced methane emissions by 22 per cent to 64 per cent. SRI also facilitates a significant reduction in the cost of production, saving of freshwater and increasing yield and farmers' income. However, despite being practised for more than two decades, SRI has still not been mainstreamed in India. Skilling farmers and organising them into FPOs to collectively adopt SRI technique and disseminate the benefits of SRI needs to be incentivised and prioritised by central and state governments, and NABARD (Roy, 2020).

The Stern Review Report (Stern, 2006) had called for urgent and transformative actions for addressing the challenges of adaptation and mitigation of climate change faced by agriculture. The Water-Energy-Food nexus approach of FAO envisions a balance between different goals, interests and needs of people and the environment in a sustainable manner. This approach enables demystification of the complex and dynamic interrelationships between water, energy and food, so that limited resources can be managed sustainably. Therefore, the Central and state governments in India, along with financial institutions, research agencies and corporate entities, need to provide adequate resources towards research and adoption of climate smart agriculture and WEF nexus approach, to enable the country to achieve SDGs by 2030.

II.5: Market Constraints

A critical problem faced by India's agriculture sector is the fragmented and distortions-riddenstate of agricultural markets. One of the major reasons for low income of farmers is lack of competitive market structure, which is bereft of transparent price discovery system. Small and marginal farm holders lack the bargaining power to sell their produce at remunerative prices due to the exploitation by traders (*arhatiyas*) in the Agriculture Produce Marketing Committee (APMC) markets. Lack of aggregation of produce

makes it uneconomical for farmers to transport their produce to the APMC markets for their sale.

GoI announces Minimum Support Price (MSP) in respect of 23 commodities. However, wheat and rice are the major commodities which are procured by state agencies at MSP, from only a few states. Hence, 92.7 per cent of procurement of wheat of 43.3 million metric tonnes (MMT) by the Food Corporation of India (FCI) and state agencies, during Rabi Marketing Season (RMS) 2021-22, was from the states of Punjab (30.5 per cent), Madhya Pradesh. (29.6 percent), Haryana (19.6 percent) and Uttar Pradesh (7.4 percent)[9]. In case of rice, Punjab (21.2 percent), Telangana (13.5 percent) and Andhra Pradesh (7.6 percent), together procured 42.3 percent of the total procurement of 59.2 MMT during Kharif Marketing Season (KMS) 2021-22[10]. However, the same is not true in respect of other states and other commodities like pulses and oilseeds, and farmers have been found to receive prices below MSP.

A number of farmer groups have been demanding a legal status for MSP, so that under no circumstances farmers would have to sell their produce at below MSP. In the absence of efficient agriculture markets in India, MSP is a kind of insurance mechanism for farmers against price volatility.The Report of the Committee for Doubling Farmers' Income observes, that though MSP is an important intervention by the government, it is not sufficient by itself. The honouring of the MSP through its use in procurement is a more substantive condition in making MSP mechanism effective. Hence, there is need for a bouquet of procurement tools that can cater to different commodities in different ways (GoI, 2017).

1. Driving the Reforms Agenda

III.1 Doubling Farmers' Income

GoI has envisioned the achievement of doubling farmers' income (DFI) initially by 2022-23, but later extended to 2024-25. While DFI set into motion reforms in the sector, the achievement of DFI is still off the mark.However, while the following seven-point strategy for DFI is mostly under implementation, it needs to be made more effective: (i) irrigation with focus on water-use efficiency, viz. "per drop more crop" (PDMC) through Pradhan Mantri Krishi Sinchayee Yojana (PMKSY); (ii) quality seed and soil health, (iii) investments inwarehouses and cold chains; (iv) value addition through food processing;

9. Rice Procurement for Central Pool. FCI. https://fci.gov.in/app/webroot/upload/Procurement/1Rice%20proc.%20last%2010%20yrs_18.pdf(accessed on 10 February 2023).
10. FCI.(2022b). Wheat Procurement for Central Pool. https://fci.gov.in/app/webroot/upload/Procurement/3wheat%20state%20last%2010%20years%20wise%20_17.pdf(accessed on 10 February 2023).

(v) electronic NationalAgriculture Market (e-NAM); (vi) increase in the coverage and effective implementation of Pradhan Mantri Fasal Bima Yojana (PMFBY); and (vii) promotion ofancillary activities like dairy, poultry, bee-keeping and fisheries.The strategy for DFI, involving increase in private investment by 6.62 per cent per annum from the base year 2015-16 at the national level, should also include among others: (a) promoting higher agricultural growth in less developed regions, including rainfed areas, with a focus on marginal and small holders; (b) strengthening livestock related activities and crop diversification to high value produce like horticulture, in line with market signals;(c) shifting priority focus to post-production management and the agricultural marketing system;(d) sizeable increase in institutional credit to farmers; (e) allocation of more resources by state governments towards minor irrigation; and (f) incentivising private corporate sector to participate in investments in agriculture (GoI, 2017).

III.2 Irrigation and Water-use Efficiency

India is a water-stressed country, and the declining per capita availability of water in the country poses a major challenge to the growth of agriculture. Out of the country's 4 percent share of global freshwater availability, the agriculture sector consumes about 78 percent share of water (Sharma, et al., 2018).However, while only 48.7 per cent of the net sown area in the country is irrigated, the depletion of groundwater, which accounts for about 60 per cent of the country's irrigated area, has adverse impact on irrigation cost and crop productivity. Therefore, the implementation of PMKSY and PDMC should create higher irrigation potential and ensure water-use efficiency.

The overall irrigation efficiency in India is observed to be low compared to global standards due to the use of conventional flood irrigation technique, practised in large parts of the country.In order to improve water-use efficiency of crop cultivation, the use of precision irrigation technologies needs to gain momentum.Water stress can be reduced and availability of water can be increased through cost-based water pricing. There is also a need to make a paradigm shift from use of input intensive technology to significantly enhancing input productivity, e.g., the use of water-saving technology like micro-irrigation, System of Rice Intensification (SRI), direct seeded rice, zero tillage, etc.

III.3 Agriculture Marketing Reforms

GoI's vision of DFI signified a paradigm shift in agriculture policy from ensuring food security to income security of farmers, by maximising their gains through post-production activities.A critical problem faced by India's agriculture sector is the fragmented and distortions-ridden state of agricultural markets. One of the major reasons for low income of farmers is unremunerative prices for their produce due to lack of a competitive market structure, which is bereft of transparent price discovery system. With majority of farmers belonging to the small and marginal category, they lack the bargaining power to sell

their produce at remunerative prices in the Agriculture Produce Marketing Committee (APMC) markets.

The electronic National Agriculture Market (e-NAM), a pathbreaking agriculture marketing reform initiative by GoI, which envisages setting up of a common e-market platform across the country, has been deployed in 1,260 regulated wholesale markets in 22 states and 3 Union Territories. The e-NAM is expected to lead to significant benefits to farmers through higher returns, while benefitting buyers through lower transaction costs, and consumers through stable prices. It is also expected to facilitate the emergence of integrated value chains in major agricultural commodities across the country, and encourage the setting up of scientific storage and movement of agri-commodities. Smallholder farmers can benefit if they were to find ways for aggregating produce on their own, bypassing the middlemen (arhatiyas) and even the local market in the process. This is where farmer producer organizations (FPOs)/ farmer producer companies (FPCs) can play a key role, by facilitating aggregation and creation of volumes that is intrinsic to the success of e-NAM. The government needs to incentivize and regulate the development of FPOs, and not seek to form or control them directly (Gulati et al, 2020). While e-NAM is supposed to create a seamless, unified national market for agriculture produce, even achieving a state-wide seamless market has been difficult due to resistance from existing market players.However, there is evidence to suggest that inter-state mandi trade via e-NAM is picking up, which indicates that the platform has reached a scale to make a meaningful difference in farmers' income. The success of e-NAM would depend on GoI's efforts to influence state governments to dismantle the existing structure and operations of APMC markets by amending the APMC Acts and implement e-NAM as seamless national hi-tech markets competing with each other, and ultimately benefitting the farmers.

With the repealing of the three agri-reforms Acts [Produce Trade and Commerce (Promotion and Facilitation) Act, 2020 (FPTC Act, 2020), Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020 (FAPAFS Act, 2020) and Essential Commodities (Amendment) Act, 2020 (ECA, 2020)], the government has constituted a committee including representatives from the central and state governments, agriculture scientists, economists, farmers, and other stakeholders to initiate a consultative process to suggest agri-marketing reforms. It needs to be seen how quickly the committee comes out with concrete proposals for agri-marketing reforms. While states need to enact agriculture marketing reform Acts, GoI should enact a law facilitating easy inter-state movement of agri-commodities/ produce. While states need to enact agriculture marketing reform Acts, GoI should enact a law facilitating easy inter-state movement of agri-commodities/ produce. Further, in order to develop an efficient nation-wide agri-marketing system, e-NAMs need to be scaled up to cover all APMC markets 28 states and 9 union territories, and made more efficient. Further, all private markets and

accredited warehouses should be linked to e-NAMs. Agriculture marketing reforms are expected to transform Indian agriculture from predominantly subsistence farming to profitable farm enterprise-based farming, integrated to efficient agri-value chains.

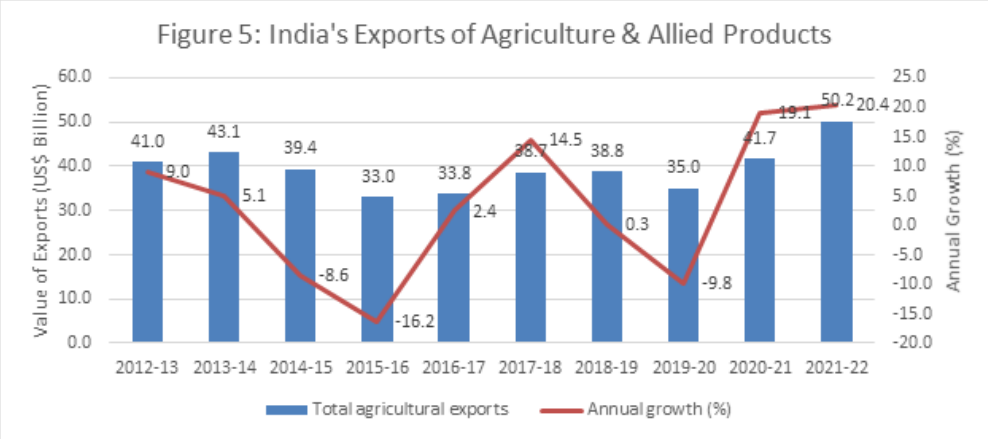
Futures markets provide a market mechanism to balance this imbalance of the supply–demand pattern of agricultural commodities. Trading in futures not only provides price signals to the market of today, but also of months ahead, and affords guidance to sellers (farmers/ growers/ processors) and buyers (consumers) of agricultural commodities in planning ahead and, in financing and marketing commodities from one season to the another. While commodity exchanges in India were allowed only futures trading in commodities, the Securities and Exchange Board of India (SEBI) has, subsequently, laid out rules for the introduction of commodity options. The combination of futures and options can give market participants the benefit of price discovery of futures and simpler risk management of options. However, SEBI has banned futures and options trading in major agriculture commodities, viz. gram (chana), mustard seed, soybean and its derivatives, crude palm oil, moong (pulses), paddy (Basmati) and wheat on 21 December 2021, as part of GoI's efforts to curb inflation. While the impact of a ban on futures and options on curbing inflation is debatable, it prevents market participants, most importantly the farmers in the spot market, of a crucial source of price information. Spot markets (viz. the APMC markets) for agricultural commodities are fragmented across geographical locations, and futures prices provide a critical reference point for pricing in these spot markets.

III.5 Agriculture Export Reforms

India ranks 8th among exporting countries of agricultural products in the world. The country's share in global agricultural exports increased from 1.1 percent in the year 2000 to 2.4 percent in 2021[11]. India's agriculture exports grew by a robust 20.4 per cent in 2021-22, to touch a record $50.2 billion (Figure5). India's agriculture exports experienced fluctuations during the 10-year period from 2012-13 to 2021-22, due to an uncertain and unstable agriculture trade regime. The 10-year Compound Annual Growth Rate (CAGR) of agriculture and food exports was 1.0 per cent.While the first 5-year period (2012-13 to 2016-17) witnessed a CAGR of -6.3 per cent, agriculture exports grew at a CAGR of 6.1 per cent in the second 5-year period (2017-18 to 2021-22). In order to catch-up with Brazil ($111 billion[12]) and China ($89 billion[13]) in agriculture exports, India urgently needs to embark upon structural reforms in the agriculture sector, along with a stable trade policy regime.

---

11. *World Trade Statistical Review 2022,* WTO.
12. ibid.
13. ibid.



Source: Author's calculations based on data accessed from the Economic Survey,Government of India (various issues) and DGCI.

The Agriculture Export Policy (AEP), 2018 of GoI, aims at achieving an export target of $60 billion by 2022 and $100 billion within a few years, thereafter. This is indeed a challenging task, and achieving the target would involve a paradigm shift from a "business-as-usual" approach to a well-calibrated, comprehensive, strategic and result-oriented agri-export policy and action plan.

The agri-export strategy should include integration of value-added agri-produce with global value chains (GVC), by adopting the best agricultural practices involving productivity gains and cost competitiveness (Roy and Roy, 2022). India is a leading producer of horticulture crops in the world and there is immense potential for the production and export of processed fruits, juices and nuts. Value-addition by way of food processing will play a major role in doubling farmers' income (DFI). GoI has sanctioned 42 mega food parks and 315 cold chain projects under the Pradhan Mantri Kisan Sampada Yojana (PMKSY). Infrastructure created under PMKSY can be instrumental in significantly increasing exports of processed food products. Linking of FPOs with the infrastructure so created, through contract farming arrangements with food processing companies, would facilitate an increase in income of small and marginal farm holders, along with small dairy and fish farmers (Roy and Roy, 2022). GoI's production linked incentive scheme (PLI) for the food processing sector will go a long way in the production and exports of processed food items.

Also, in order to boost exports of dairy products and make the dairy sector globally competitive, GoI needs to consider the development of Dairy Export Zones (DEZs) in collaboration with state governments in leading milk producing states like Uttar Pradesh,

Rajasthan, Madhya Pradesh, Gujarat, Andhra Pradesh, Punjab, Maharashtra, Haryana, Tamil Nadu, and West Bengal (Roy, 2021). Leading dairy producers could set up modern hi-tech dairy processing units in the DEZs, for producing globally competitive high-value dairy products (Roy and Roy, 2022). The units in the DEZs could enter into contract farming arrangements with dairy FPOs/FPCs/cooperatives for sourcing milk. Such an arrangement would be mutually beneficial in terms of cost efficiency and higher export revenue to the dairy companies, and higher income for farmers.

The AEP has recommended the establishment of Agriculture Export Zones (AEZs), to facilitate value addition of agri-commodities for increasing exports in a WTO compatible manner.AEZs across the country should have food parks and easy connectivity to expressways, railways, airports, and ports. Developing and upgrading airports in two-tier cities as international airports, with easy road and railway connectivity from AEZs and districts under the One District One Product (ODOP) scheme, could facilitate exports of agricultural commodities, processed food, horticulture and dairy products, significantly reducing transport time and minimising loss due to wastage of perishable commodities. In order to ensure higher income to farmers, FPOs need to be linked to AEZs to supply SPS-compliant agri-products.

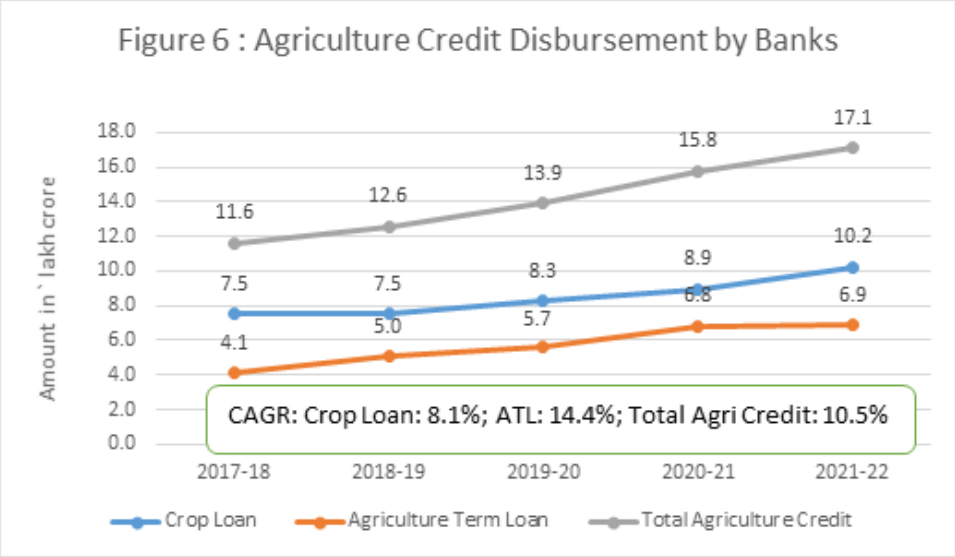
Growing protectionism and economic slowdown across major economies is a serious threat to raising exports. This would require intense diplomatic efforts with India's trading partners to finalise trade deals. Efforts to finalise Free Trade Agreements (FTAs)/Comprehensive Economic Partnership Agreements (CEPAs) with the UK, the EU, Canada, and the GCC, and to upgrade the Economic Cooperation and Trade Agreement (ECTA) to CEPA with Australia, and, within the shortest possible timeline, and to promote diversified agri-exports, need to gather momentum (Roy and Roy, 2022).

Concerted efforts by GoI, state governments, export promotion agencies, financial institutions, exporters, food and agro-processing industry, agri-tech start-ups, FPOs/FPCs, and all other stakeholders in the agri-export value chains, would be able to address a whole range of issues pertaining to the promotion of agriculture exports. Further, comprehensive reforms in the agriculture sector could propel India into the top bracket of agricultural exporters in the world, while attaining $100 billion in exports of agriculture and food products by 2026-27 (Roy and Roy, 2022).

III.6 Agricultural Credit

Adequate and timely availability of bank credit, at affordable rates of interest is essential to improve agricultural production, productivity and sustainability. Innovative financial solutions supported by GoI, RBI, NABARD and banks, have been instrumental in bringing about steady growth in institutional credit to the agriculture sector.

Institutional credit flow to the agriculture and allied sector reached an all-timehigh of ₹17.1 lakh crore during 2021-22 (Figure 6). During the five-year period 2017-18 to 2021-22, agriculture credit disbursement grew at an impressive CAGR of 10.5 per cent. While crop loans grew at a decent CAGR of 8.1 per cent, the CAGR of term loans/ investment credit was a very strong 14.4 per cent. An 11 per cent rise in the agriculture credit target to `20 lakh crore proposed in the Union Budget 2023-24, focusing on high-value and high-growth sectors allied to agriculture, viz., animal husbandry, dairy and fisheries, would certainly contribute to a faster and sustainable growth in the sector.



Source: NABARD Annual Report 2021-22.

For sustainable growth of the sector, institutional credit support needs to focus on ensuring increased term loans to farmers, FPOs, agripreneurs, cooperative federations, and agri-business firms, for high-growth, high-value and diverse activities, viz., horticulture,-animal husbandry, dairy,fisheries, irrigation, micro-irrigation, farm mechanisation, warehouses, renewable energy, agriculture value chains, etc. Further, agri-tech start-ups need to be provided term loan for development of digital technology for precision farming, and post-harvest activities. It is imperative to increase the share of agriculture term loans in total agriculture credit disbursed, from the current 40 percent to 60 percent, to accelerate capital formation in agriculture.

Apart from support for the enhancement in credit supply, it is important to stimulate demand for agriculture credit, through expansion of credit absorption capacity through creation of rural infrastructure and farm investments; expansion of digital payments infrastructure; and developing financial, agri-tech and digital literacy of farmers.

2. Technology-driven Agriculture

Studies have shown that adoption of modern technologies have a positive impact on agricultural productivity, agricultural production, farmers' income, income diversification, conserving natural resources, improving input use efficiencies, and creating employment opportunities.The most prominent pathways to enhance farmers' income is the adoption of improved agricultural technologies would encompass (a) genetic enhancement, (b) natural resource management, (c) farm mechanisation, (d) conservation agriculture, (e) climate smart agriculture, (f) biotechnology and genetic modification, (g) biofortification, (h) frontier technologies, and (i) digital technologies (Joshi and Varshney, 2022).

According to NITI Aayog (2018), Artificial Intelligence (AI) will have significant global impact on agricultural productivity at all levels of the value chain. AI and embedded systems in agriculture sector via smart irrigation system can result in the efficient use of water resources. Drip irrigation system can be fully automated using IoT, resulting in significantly higher crop yield due to much better water-use efficiency than traditional drip irrigation system. NITI Aayog and IBM have partnered to develop a crop yield prediction model using AI to provide real time advisory to farmers. Also, Microsoft in collaboration with ICRISAT, has developed an AI Sowing App. The app sends sowing advisories to participating farmers on the optimal date to sow.

ITC has launched its super app Meta Market for Advanced Agricultural Services (ITC-MAARS) to provide agricultural and allied services to farmers on a digital platform.The app has been launched in seven states with over 40,000 farmers grouped in more than 200 FPOs under four value chains – wheat, paddy, soya, and chilli. But the ultimate aspiration is to take it to 4,000 FPOs and 10 million farmers and 20 value chains.The platform, a 'phygital' ecosystem provides farmers with AI/ML driven value-added personalised and hyperlocal crop advisories, such as customised 'Crop Calendar' for scientific planning of crop cycles, 'Crop Doctor' for real-time resolution of crop infestation, access to inputs, market linkages, real-time soil testing, precision farming, among others.

As part of an aggregator model, ITC makes available allied services like pre-approved loans through partners. Over time, it will also provide insurance, among other digitally-enabled rural services

To promote innovations and technologies in the agriculture sector, the Union Budget 2023-24 has announced the creation of digital public infrastructure for agriculture to be built as an open source, open standard and inter operable public good. This will enable inclusive, farmer-centric solutions through relevant information services for crop planning and health, improved access to farm inputs, credit, and insurance, help for crop estimation, market intelligence, and support for growth of agri-tech industry and start-ups. The digital initiatives will improve access to farm inputs and boost market intelligence,

prompting growth of agri startups. The proposed digital agri-stack will aid farmers with better crop planning and help them access credit and insurance services.

Digital technologies developed by agri-tech startupsare altering agricultural production andmarketing as well as consumption. The Agriculture Accelerator Fund, announced in the Budget will be set-up to encourage agri-tech startups by young entrepreneurs in rural areas. The Fund will aim at bringing innovative and affordable solutions for challenges faced by farmers. It will also bring in modern technologies to transform agricultural practices, increase productivity and profitability

3. Building Rural Infrastructure and Developing Efficient Agri-Value Chains

Investment in rural infrastructure is a pre-condition to enable the acceleration of agricultural growth, creation of new economic opportunities, and generation of employment. NABARD, a leading entity in the financing of rural infrastructure in India during the last three decades, has been playing a catalyticrole in building rural infrastructure in the country by leveragingvarious funds at its command[14].

NABARD has supported irrigation projects across India under different funds to improve agricultural production and productivity,reduce production risks through drought-proofing,and expand cultivated area. These projects have transformed the rurallandscape, delivering impactful outcomes. There is also evidence to suggest that rural connectivity (roads and bridges) projects financed by NABARD have reducedtravel time, spurred economic activity, improved marketaccess, facilitated linkages to value chains, enhancedcredit access, and ensured better access to healthcare (NABARD, 2022).The outcomes of these projects have improved the opportunities forand well-being of the communities in the project area.

Setting up of mega food parks, integrated cold chains, food processing units, agro-processing clusters, and implementation of Operations Greens Scheme, under GoI's comprehensive package of PM Kisan SAMPADA Yojana (PMKSY) , will not only provide a big boost to the growth of food processing sector in the country but also ensure higher income to farmers, while creating huge employment opportunities especially in the rural areas, reducing wastage of agricultural produce, and enhancing the export of processed foods. The PLI scheme for the food processing sector is expected to transform the agriculture and food sector, making it globally competitive. A sizeable number of young farmers can

14. Rural Infrastructure Development Fund (RIDF), NABARD Infrastructure Development Assistance (NIDA), Warehouse Infrastructure Fund (WIF), Long Term Irrigation Fund (LTIF), Micro Irrigation Fund (MIF), Food Processing Fund (FPF), PM Awas Yojana – Gramin, Credit Facility to Federations (CFF); Dairy Processing and Infrastructure Development Fund (DIDF); Fisheries and Aquaculture Infrastructure Development Fund (FIDF); Rural Infrastructure Assistance to State Governments (RIAS); Swachh Bharat Mission–Gramin (SBM–G).

be skilled in digital and food processing technologies and shifted from crop cultivation to the food processing sector across efficient agri-value chains. This would consequently add significant value to agriculture and related products, raise productivity, create employment, and enhance incomes of farm households.

IV. Transforming Indian Agriculture: FPOs as Change Agents

About 86 per cent of operational farm holdings in India are in the small and marginal categories, with farmers practicing subsistence farming, and living in a VUCA world. Due to fragmentation and disorganisation, farmers face constraints in procuring inputs like seeds, fertilisers and pesticides at reasonable prices, lack bargaining power in the market for realising better value for their produce, and have inadequate access to technology, extension services, market, credit and crop insurance. As a result, majority of small and marginal farm holders are unable to realise optimal value from their farming operations. In order to address these and other problems encountered by these categories of farmers, farmer producer organisations (FPOs)/ farmer producer companies (FPCs)/ collectives have come into existence in the country.the Y.K. Alagh Committee (2000) constituted by Government of India (GoI), recommended the promotion of producer companies that allow the cooperative spirit to co-exist with the operational flexibility of corporates. Over the years, NABARD, SFAC and state agencies have helped form FPOs/ FPCs.

FPOs need to develop as change agents for evolving subsistence farming to farm enterprises, and developing efficient agri-value chains, fortransforming the agriculture sector. In 2020, GoI launched a Central Sector Scheme (CCS) for the promotion of 10,000 FPOs within a period of five years, with a total budgetary provision of `6,865 crore.The government will provide financial support of up to `18 lakh per FPO in their first three years. It is expected that from the fourth year onwards, the FPOs will be able to manage without this assistance. Although the government has increased hand-holding and financial support for new FPOs, this may be inadequate, as their working capital needs have not been taken care of. Banks are also reluctant to finance FPOs, as they are unsure of their creditworthiness.

The issues and challenges faced by FPOs need to be addressed by the government and all stakeholders in the FPO space, to make them sustainable institutions, enabling a significant improvement in the income and livelihoods of small and marginal farm holders.FPOs will require accessto cheap credit and much more for realising their full potential. Enabling membercentrality, ownership, good governance, and businessplanning capabilities are equally important. There also needs to be a focus on infusionof technology; well-developed backward and forwardlinkages, with focus on export; and improving businessorientation, clarity on compliance needs, and assimilationof market preferences.

FPOs/ FPCs provide end-to-end links between farmers and their markets and allow them to improve their productivity through efficient, cost-effective, and sustainable use of resources. Farmers acquire better capacity for and access to technical know-how on crop planning and management, inputs, credit, post-harvest management, value addition, etc. They will also be able to obtain higher returns for their produce through improved access to markets. This can be achieved through fruitful collaboration with academia, research agencies, government, civil society, and the private sector.

There needs to be a policy focus on promoting inclusive agri-value chains, for the benefit of small and marginal farm holders. An effective way to make it possible is through strong and efficient FPOs/FPCs. Linking of FPOs/ FPCs through contract farming arrangements with export-oriented food processing units of food parks created under Pradhan Mantri Krishi Sampada Yojana (PMKSY), for producing processed cereals, fruits, vegetables, fish and marine products, would boost exports of processed food and raise the income of small and marginal landholders and small fish farmers.

It is observed that the larger universe of banking and the rules may not suit the nuanced requirements of FPOs. Therefore, special attention needs to be paid to the aspect of funding arrangement of the collectives in the form of term loan for their investment needs, value chain financing for meeting the credit needs along the FPO value chain, and short-term credit limits for meeting the working capital needs of FPOs/FPCs. The establishment of a social stock exchange by the government may open up the possibility of experimenting with alternative funding opportunities for the FPOs/ FPCs.

The agri-tech start-ups in India have been trying to solve problems of low productivity, sub-optimal efficiency in the supply chain, and lack of access to markets, institutional credit, crop insurance, and quality inputs. The relationship between FPOs and start-ups is symbiotic as most of the challenges faced by FPOs can be solved through partnerships.

V. Way Forward

Effective implementation of comprehensive agricultural reforms, with a high priority accorded to agri-marketing reforms, could lead to sustainability of Indian agriculture, and facilitate significant enhancement farmers' income, while mitigating agrarian distress. FPOs need to be made the change agents to transform the agriculture sector.An enabling environment for agricultural sustainability needs to be created through massive investment in irrigation, with a focus on water-use efficiency, enhancement in total factor productivity of crops, tech-driven agriculture, climate-smart agriculture, creation of rural infrastructure, development of efficient agri-value chains, agri-marketing reforms, and promotion of agri-exports.

The unfinished agenda for agriculture sector reforms include pursuing tenancy re-

forms, digitisation of land records, significantly raising R&D spending on modernization of agriculture through artificial intelligence and blockchain technology for increasing crop productivity and resource-use efficiency, strengthening of agri-tech start-up ecosystem, and skilling of farmers who could be taken out of farming to be gainfully employed along efficient agri-value chains. Further, inclusion of agri-marketing in the Concurrent List (applicable to both Government of India and State Governments) of the Constitution of India (from the present State List), needs to be thoroughly debated nationally by all stakeholders and prioritized by the government. Reforms would create an ecosystem which would enable farmers to come out of the VUCA world, and facilitate the agriculture and allied sector to grow at 5 per cent per annum over the medium to long term. This would contribute to the long-term overall growth rate of GDP at 7-8 per cent for India to reach the milestone of a $10 trillion economy by 2035.

***References*:**

Government of India (GoI). (2017). *Report of the Committee on Doubling Farmers' Income* (Volume IV). Ministry of Agriculture and farmers' Welfare, New Delhi.

Joshi, P.K. and Deepak Varshney. (2022).'Agricultural Technologies in India:A Review'. *NABARD Research and Policy Series* No. 5/2022. Mumbai.

MoEFCC.(2021). *India: Third Biennial Update Report to the United Nations Framework Convention on Climate Change*. Ministry of Environment, Forestand Climate Change, Government of India.

NABARD. (2018). *NABARD All India Rural Financial Inclusion Survey 2016-17*. Mumbai.

NABARD. (2022). *Annual Report 2021-22.* Mumbai.

NITI Aayog. (2018).*Discussion Paper: National Strategy for Artificial Intelligence*. NITI Aayog, New Delhi.

Roy, Debesh. (2020). Roy, Debesh. 2020. "Green development: Strategising mitigation of agricultural methane emissions", *Financial Express*, August 24, 2020. New Delhi.

Roy, Debesh, (2021). Doubling Farmers' Income: Increasing Agricultural Exports is Key. *Financial Express,* January 12, 2021. New Delhi.

Roy, Debesh, and Bijetri Roy. (2022). 'Attaining US$ 100 Billion Agriculture and Food Exports: The Way Forward', in Debesh Roy, & Bijetri Roy (Eds.), *India's Agriculture and Food Exports: Opportunities and Challenges*. Bloomsbury India, New Delhi.

Singh, Reena and Ashok Gulati (2023). 'India's Long Term Low CarbonStrategy and Agriculture' in *Agri-Food Trends and Analytics Bulletin*, Volume 2, Issue 3, January 2023, ICRIER, New Delhi.

Sharma, Bharat R., Ashok Gulati, Gayathri Mohan, Stuti Manchanda, Indro Ray, and Upali Amarasinghe. (2018). *Water Productivity Mapping of Major Indian Crops*. NABARD & ICRIER.

Stern, Nicholas. (2006). *Climate Change: The Stern Review*. Cambridge University Press. New York.

Cashless Transaction in the Age of COVID-19 Pandemic

Malabika Roy[1] & Sancharita Dutta[2]

Abstract:

The promotion of cashless transactions is a policy priority for the Indian Government. To this end the government of India has also adopted various policy measures to promote financial services and cashless transactions, starting with the 'Pradhan Mantri Jan Dhan Yojana' in 2014 and the controversial policy of Demonetization in November 2016. However, the advent of Covid-19 pandemic and resulting lock down also may have an impact on the extent of cashes transaction – an issue that remains unaddressed. In the present paper, we attempt to fill the gap by adopting the multi-dimensional index of cashless transactions) to analyze the impact of the Covid-19 pandemic on promotion of overall value and volume of the cashless transactions It has been found that demonetization and post-demonetization policies had a prominent positive impact on the overall cashless transaction compared to the effect of the Covid-19 pandemic. But in the case of individual types of cashless transactions, the effect of Covid-19 is also very prominent.

Keywords: Cashless Transaction, Index of Cashless Transaction, Multi-dimensional Index,

Covid-19, Pandemic, Post demonetization, Structural Breaks

JELCodes:I31,J17,O11.O23,O53,P36,P43

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The authors have no conflicts of interest to declare that are relevant to the content of this article.

Availability of Data and Material: Our data sources are RBI Bulletins for the period 2012 -2018 which publishes bank wise and month wise data on value and number of the different types of cashless transaction. GDP at current year price has been collected from RBI database on Indian Economy for the period of 2012-2018, from that, we have calculated the monthly GDP. Population data has been collected from World Bank (United Nation Population Division's world population prospects: 2019)

Code Availability: Excel, Eviews 9, SPSS

I. Introduction

RBI report [3] describes digital transaction as follows: "Digital Transaction means a payment transaction in a seamless system effected without the need for cash at least in one of the two legs, if not in both. This includes transactions made through digital / electronic modes wherein both the originator and the beneficiary use digital / electronic medium to send or receive money".

India's net cost of cash was 1.7 % of GDP in 214-15.This cost includescost of printing new currency, maintaining currency cheat and cost of maintaining supply in ATM network. Further foregone taxes due to the existence of shadow economy, accounts for 3.2% of GDP.[4] There is also the cost of counterfeit money. Electronic payment system enjoys two clear advantages over the cash based or paper based non-cash payment systems. First, electronic payment system is less costly.[5]Secondly, since under cashless transactions the documentation of each transaction is more detailed and requires more accuracy compared to cash transactions, the possibility of creation of black money is less the transactions are more transparent resulting in higher tax collection.

Starting from 'Pradhan Mantri Jan Dhan Yojana' (PMJDY) in 2014 which has a national mission for Financial Inclusion through ensuring access to financial services to all Indians, the promotion of financial services and cashless transaction has been one of the policy priorities of the government of India. According to the Press Information Bureau (December 2016) the government has adopted several measures for the promotion of digital and cashless transaction under the scheme of 'Cashless India' right after the demonetization strategy in November 2016. Following demonetization policy[6], other measures were launched on 30th November 2016 by NPCI (National Payment Corporation of India), which included Unstructured Supplementary Service (USSD)[7], Aadhaar Enabled Payment System (AEPS)[8], the scheme Digital Finance for Rural India[9], creating Awareness and access through CSCs', and others[10].

During the pandemic of 2020-22 , two effects would have affected the non-propensity to move towards non-cash transaction in India. On the one hand economic activities were severely affected due to the widespread pandemic and consequent lockdown. Percentage growth of GVA dropped to -6.5% in 2020-21 from 4% in 2019-20. Industry was already experiencing a slowdown in 2019-20 (-2%) . The growth rate became -7.4% in 2020-21. Service sector was worst affected. From 6.4 % in 2019-20 the growth rate became -8.4%

in 2020-21. Deceleration in the economy would have adversely affected all transactions including non-cash mode of transaction. On the other hand lock-down and work from home encouraged non-cash modes of transactions. According to the report of World Bank Global Findex Database[11],developing economies in 2021, 18% of adults paid utility bills directly from an account. About one-third of these adults did so for the first time after the onset of the COVID-19 pandemic. The share of adults making digital merchant payments also increased after the outbreak of COVID-19. The report also mentioned that in India 80 million adults made their first digital merchant payment during the pandemic. In India, account ownership more than doubled in the past decade, from 35 per cent in 2011 to 78 per cent in 2021. The share of account owners with an inactive account varies across developing economies, but it is especially high in India at 35 per cent, the highest in the world. That share is about seven times larger than the 5 per cent average for all developing economies, excluding India.As per the report, one reason for the high share of account inactivity in India may be that many of these accounts were opened as part of the Indian government's Jan Dhan Yojana scheme to increase account ownership. Launched in August 2014, the program had by April 2022 brought an additional 450 million Indians into the formal banking system. The share of adults with inactive accounts in India remained about the same between 2017 and 2021

The present paper searches for an answer to the question: did the Covid 19 pandemic induced lock down accelerate the speed of adoption of cashless transaction. In other words which effect dominated: the negative effect of economic deceleration or the positive effectof lock down and distance maintaining protocols. One of our objectives is to validate the mentioned (in the report of the Global Findex report 2021) effects of the COVID-19 Pandemic on the growth of both the volume and value of the cashless transaction of the economy The other objective is to compare the effect of COVID-19 with the effects of the other policies related to the cashless transaction such as 'Pradhan Mantri Jan Dhan Yojana' policy, the controversial demonetization policy and subsequent 'Cash Mukt Bharat' policies.To this end, we use the index of cashless transaction methodology adopted by Datta and Roy (2022), which is different from the existing methodologies used in existing literature.

The paper is organized as follows. In the section 2 we discuss the literature gap. Section 3 describes the data & methodology. Section 4 discusses the empirical implications of our methodology and finally section 5 concludes.

II. Literature Review

11. The report of World Bank Global Findex Database "Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19" (2021).

In this present section we identify the existing literature gap.

Datta and Roy (2022) measures the extent of the cashless transaction of the Indian economy overtime, by utilizing three different Indices of the cashless transaction. Their objective was to measure the effects of the PMJDY (in 2014) and demonetization and associated policies on the overall cashless scenario of the economy.

The KPMG report "Impact of COVID-19 on Digital Payments in India" (2020). analyses the various types of cashless transaction over the pandemic period to measure the impact of COVID-19 pandemic on the various cashless transaction of the economy. But the analysis is based on the graphical plots of the various types of the cashless transaction separately and the sector wise analysis is also present in the payment corresponding to the various types of the cashless transaction. But the period of the analysis is very short, pre covid-19 and post Covid-19 scenario can't be compared in this report.

Several studies discuss the use of credit and debit card in the pre-covid period, Westland, Kwok, Shu, Kwok and Ho (1998),Borzekowski, Kiser and Ahmed (2008), Humphrey, Kim and Vale (2001), Drehmann, Goodhart and Krueger (2002) to name a few. However, none of these studies use an index of cashless transaction.

The only study we found that analyses average digital transaction per capita over time, in the Indian context is the RBI report "The Status of the Digital Payment of the Indian Economy" (2019). The report aggregates the various types of cashless transaction to arrive at a measure of cashless transaction. It has used the per capita aggregate number of the digital payment (adding the volume of NEFT, POS, RTGS, UPI, IMPS, PPI etc.) and the aggregated value of the digital transaction as a percentage of GDP to measure the extent of cashless transaction in the Indian economy over time. However, the study has several limitations. First, the study implicitly assumes that different types of digital transactions are independent of each other, whereas, in reality some relationships exist among the various types of transactions. Secondly in the study, equal weights have been assigned to all types of digital transactions without providing any explanations. Thirdly, arithmetic mean without weight has been used as a method of aggregation implying perfect substitutability between each pair of dimensions, which is not desirable. Empirically speaking debit card transaction can't be considered as perfect substitute to electronic fund transfers directly from the banks.

Chakrabarty, Jha & Ray (2020) study the impact of digital payment in the context of demonetization in Indian Economy, considering RTGS, NEFT & Mobile Banking transaction. They find that the impact is mostly transitory in nature. The objective of this paper is similar to our paper but there is a methodological difference, we have constructed cashless transaction indices , Bhuvana and Vasantha (2017) has studied the effect of demonetization towards the adaptation of cashless payment system, based on the primary data,

but this study has not construct any index, and has not reflect the effect on various types of cashless transaction separately

We have not come across any study that has used a comprehensive index in measuring the effect of Covid-19 pandemic on the cashless transaction of any economy. So, in the present paper we attempt to fill the literature gap. The methodology used in the present paper is the same as that of Datta and Roy (2022). We measure the comparative impact of Covid-19 pandemic on the overall cashless transaction scenario of the economy, taking into account both the value and the volume of the cashless transaction in the form of indices.

III. Data & Methodology

The present section discusses the methods of our analysis along with the details of the dimensions we use in the construction of the indices.

III. 1. Construction of indices

Datta and Roy (2022) constructed an Index of Cashless transaction adopting the methodology developed by UNDP (2010), as it satisfies most properties of an ideal index.[12]The only methodological difference is that UNDP assigns equal weights to the indicators of its HDI construction based on the normative judgment, whereas in the analysis of Index of Cashless TransactionDatta and Roy (2022)uses principal component analysis to calculate the weights assigned to the different dimensions.

The policies promoting cashless transaction can affect value of the cashless transactions differently from the volume of the cashless transaction. So, to get a comprehensive picture of the extent of the cashless transaction Datta and Roy(2022) consider alternative indices of cashless transaction measured in terms of value of cashless transaction as well as measured in terms of volume (number of the cashless transaction).

To this end, three alternative indices of cashless transaction are constructed:

a) Per Capita volume of Cashless Transaction Index.

b) Per Capita Value of Cashless Transaction Index.

c) Value of Cashless transaction as a Proportion of GDP Index.

The value and volume of the cashless transaction can be affected by exogenous factors like an increase in the population in the economy or the increase in the GDP and the value

12. This is discussed in the subsequent section

of the cashless transaction can also be affected by inflation. Therefore, to eliminate both the effect of inflation and population growth from the value of the cashless transaction, we divide the values of the cashless transactions by the GCF Deflator separately and then take those values as a proportion of the adult population (per capita) and construct 'Per Capita Value of the Cashless Transaction Index'. Alternatively, to eliminate the effect of changes in GDP, the Value of the cashless transaction as a proportion of GDP is taken and a separate index is constructed. In the case of the value of the cashless transactions as a proportion of GDP, the analysis needs not eliminate the effect of inflation separately, as both nominal GDP and the value of cashless transactions are affected in the same way by inflation.Therefore, when considering the value of cashless transactions as a proportion of GDP the effect of inflation will be automatically removed. Similarly, to eliminate the effect of population growth from the volume of the cashless transaction, the volume of the cashless transactions index is also converted to per capita. The dimensions used to construct the three indices are described in table 1.

Table 1: The list of the dimensions used in the construction of three different indices

Per Capita Volume of Cashless transaction index (Per Adult Population)	**Per Capita Value of Cashless Transaction index (Adjusted with GCF Deflator)**	**value of cashless transaction as a proportion of GDP index**

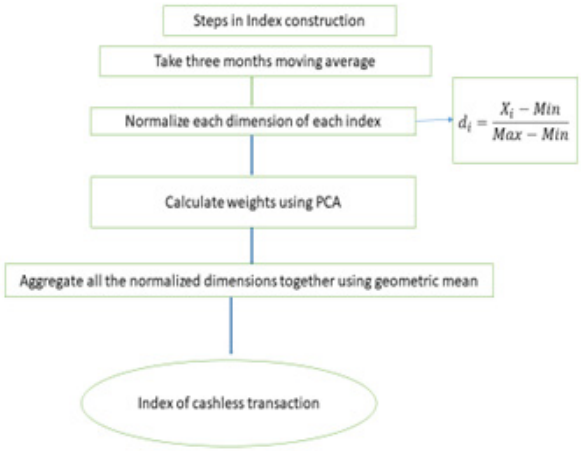
i. The number of cards (bothdebit and credit card) per 1000 adult population	**i.** Per capita value of POS transaction. (per adult population)	**i.** Value of POS transaction as a proportion of GDP.
ii. Number of POS[13] transaction per capita.	**ii.** Per capita value of NEFT transaction (per adult population)	**ii.** Value of NEFT transaction as a proportion of GDP.
iii. Number of NEFT[14] transaction per capita.	**iii.** Per capita value of RTGS transaction. (Per adult population)	**iii.** Value of RTGS transaction as a proportion of GDP.
iv. Number of RTGS[15] transaction per capita.	**iv.** Per capita value of IMPS transaction. (Per adult population)	**iv.** Value of IMPS transaction as a proportion of GDP.
v. Number of IMPS[16] transaction per capita.	**v.** Per capita value of ECS	**v.** Value of ECS debit & credit + NACH transaction as a proportion of GDP.
vi. Number of ECS debit & Credit + NACH[17] transaction per capita.	debit & credit + NACH transaction. (Per adult population)	

13. Point of Sale refers to the transactions using debit or credit cards while purchasing goods and services by swiping cards at the merchant's counter as well as at the time of online transactions using debit or credit cards.
14. National Electronic Fund Transferis an electronic system to transfer money from a bank account to another bank account. It needs 1 to 2 working days to transfer the fund) the fund transfer limits are from 1 rupee to 10 lakh rupees. So, it is also important to incorporate this into our analysis.
15. Real Time Gross Settlementis also a cashless fund transfer facility provided by banks from one bank account to account (nationally). It is real-time and transfer limit is from 2 lakh rupees to unlimited. It is also an important cashless transaction to incorporate.
16. IMPS is real time cashless fund transfer system, can be done specially using mobile phones and Internet banking. With the advancement of Internet and mobile phones it is very much important to incorporate this to aggregate the cashless transaction of the economy. One can also do the NEFT and RTGS transaction using mobile phones and Internet banking but as we considered all the NEFT and RTGS transaction separately, to avoid the double counting problem, we have considered only IMPS transaction instead of Mobile banking transaction.
17. ECS and NACH both are repetitive cashless fund transfer system, ECS debit is used to raising money from a number of accounts for affording a single credit to a particular institution. ECS Credit is used for affording credit to a multiple number of accounts by raising a single debit from an account. NACH is just like ECS transaction with an improved technology and technique it also has a unique mandate reference number alike ECS. As institutions and corporate houses are shifting from ECS to NACH nowadays so we have incorporated the sum of these three transactions (ECS debit & Credit and NACH transactions) together into our analysis.

Source: Own

The movement of the three indices over time together are expected to give a comprehensive understanding about the comparative impact of Covid-19 pandemic on the overall cashless transaction of the economy.

. The methodology adopted from Dutta and Roy (2020) is given below in the form of a flow chart



Index satisfies the properties of monotonicity[18] and homogeneity[19]. As geometric mean is used for constructing the index, substitutability between the dimensions is not perfect which is desirable because in our analysis POS transaction is not aperfectsubstitute to the NEFT or RTGS transaction.Also, in this methodology the dimensions are not independent, as we have found (Appendix table A3). In other words, the marginal effect with respect of each dimension is a function of other dimensions, which has been taken care by the index.

In order to assess the importance of the dimensions and determine the weights for each of the dimensions, we use Principal Component Analysis following Datta and Roy (2022). The results show that the factor loadings corresponding to the leading eigenvalue gives equal weights to the each of the dimensions for all the three indices except RTGS/GDP, so we drop that dimension in the construction of Value/GDP index (Appendix Table A5).

---

18. Monotonicity implies that the value of the dimension is a strictly increasing function of the actual value of that dimension. Given minimum & maximum value.

19. Homogeneity means, the entire individual dimension must be independent of any unit of measurement. i.e., $d_i(x_i, m_i, M_i) = d_i(cx_i, cm_i,$ $d_i(x_i, m_i, M_i) = d_i(cx_i, cm_i,$

III. 2. Data

We perform a month-wise analysis with 76-time points from September 2012 -December 2021. Our data sources are RBI Bulletins for the period 2012 -2021 which publishes bank wise and month wise data on value and volumeof the POS, NEFT, RTGS, ECS and IMPS transactions and total card outstanding.So, there are 1760 data points in total.

GDP and GCF data have been collected from RBI database on Indian Economy. We have taken the quarterly GDP of India at current year prices from 2011-12 to 2021-22 and from that, we have calculated the monthly GDP[20]. We take annual GCF data from 2011-12 to 2020-2021 and for the financial year 2021-2022 we consider the average annual growth rate of 2019-20 and 2020-21, and converted that into monthly GCF deflator.

Population data has been collected from World Bank (United Nation Population Division's world population prospects: 2021). We have collected data on total population, population between 15 years to 64 years of age and percentage of total population having the age 65 and above (for the years from 2012-2021). From this dataset we get our desired total adult population of Indian economy over the years. Due to the unavailability of the data on population of 18 years and above we consider 15 years and above as adult age in our analysis, which is one of the limitations of our study. To derive the month wise total adult population, we compute the yearly growth rate of the adult population and from that we calculate the monthly growth rate by simply dividing the yearly growth rate by 12 (assuming constantgrowth rate over the months) and with the help of the monthly growth rate we compute the monthly adult population of India over time.

IV. Results

In this section we present the trend analysis & structural break analysis of the individual dimensions of each index, as well as that of the aggregate indices.

IV. 1. Analysis: individual dimensions:

Figures 1 to 6 show the graphical representation of each of the dimensions used to construct the indices. From figure 1 we observe the following trends in number of cards per thousand populations:

There is a a jump in the trend of the dimension number of cards per 1000, near January 2015 right after the 'Pradhan Mantri Jan Dhan Yojana' policy of financial inclusion was initiated. This was long before demonetization but there is no such jump after the demonetization period.

After December 2018 it starts declining drastically till the end of 2019, this could

be due to an economic slowdown in the year of 2019 Indian economy, but surprisingly during the period of pandemic there is a smooth increase in the no. of cards per 1000 adults. The reason could be that due to the promotion of contactless payment system people were more intend towards having debit or credit cards.

Figure 2 represents a graphical plot of 3 types of POS transactions (including per capita value per capita volume and value as a proportion of GDP), We find that the number of POS per capita, the value of POS per capita and the value of POS as a proportion of GDP increased sharply immediately after the demonetization period. This is eminently understandable as just after the demonetization period, people were forced to use debit and credit cards to make their purchases as the two highest currency notes were removed from circulation and ATMs were usually out of cash, but after some month's it reverted to the previous trend. But considering the starting period of the Covid-19 pandemic, there is a sharp decline in all three measures of POS transactions, which is indeed understandable. During November 2020, the trend line starts increasing. But, does not come back to the previous trend (Figure 2).

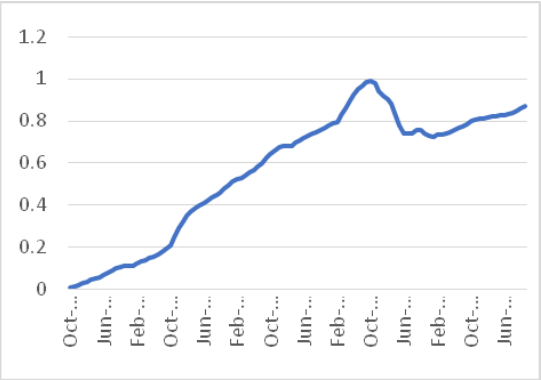
Figure 1: No. of Cards per 1000 Adults

Source: Own

Figure 2: POS Transaction

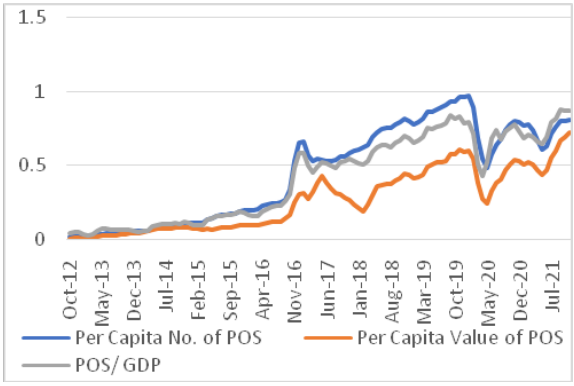
Source: Own

Figure 3: NEFT Transactions

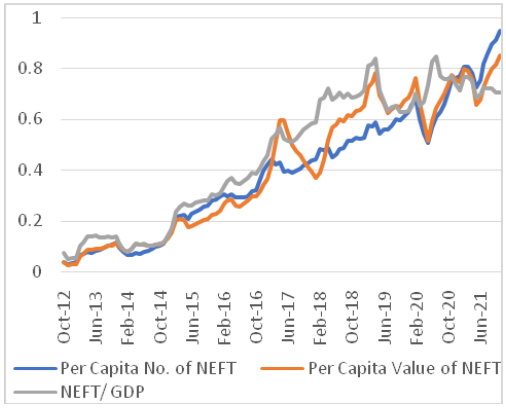


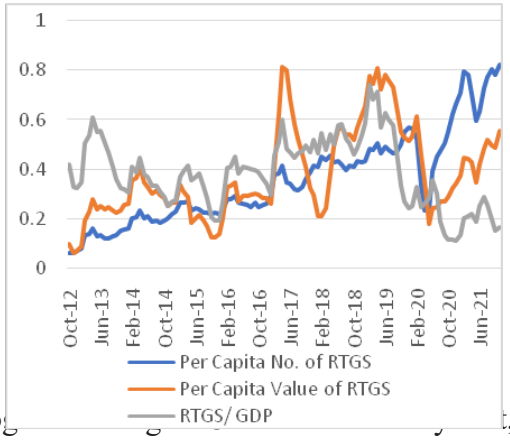
Source: Own.

Figure 4: RTGS Transactions



Source: Own



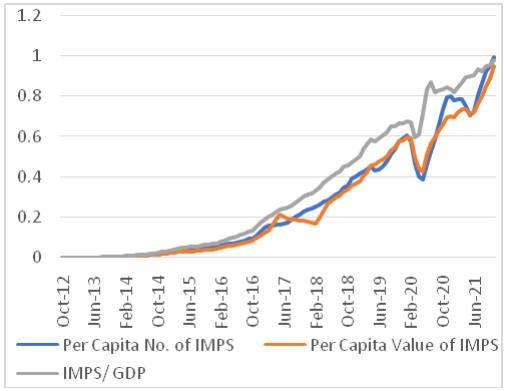


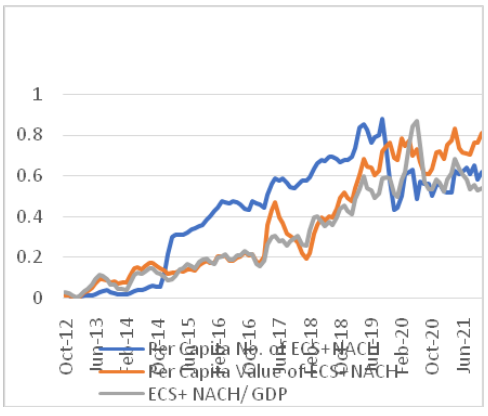
All three measures of NEFT are presented to[illegible], there are marginal increments in all three measures of NEFT transactions immediately after the demonetization. But all three measures of NEFT transactions returned to their previous trend a few months after the demonetization. There is a sharp decline in all three measures just after the pandemic happened, but the Per capita value and volume of NEFT transactions recovered very well from that downturn, but not in the case of Value NEFT/ GDP. From figure 4 we can observe that all three measures of RTGS transactions show fluctuations over the period, but there are visible declines during the pandemic period. Per capita number of RTGS has recovered fully, Per capita value of RTGS recovered partially, but RTGS/ GDP. hasn't started recovering.

Figure 6: ECS+NACH Transaction **Figure 5: IMPS Transactions**

Source: Own Source: Own.

Figure 5 shows that all three measures of the IMPS transaction have been steadily increasing at an increasing rate. But the effect of the demonetization (in Nov 2016) on





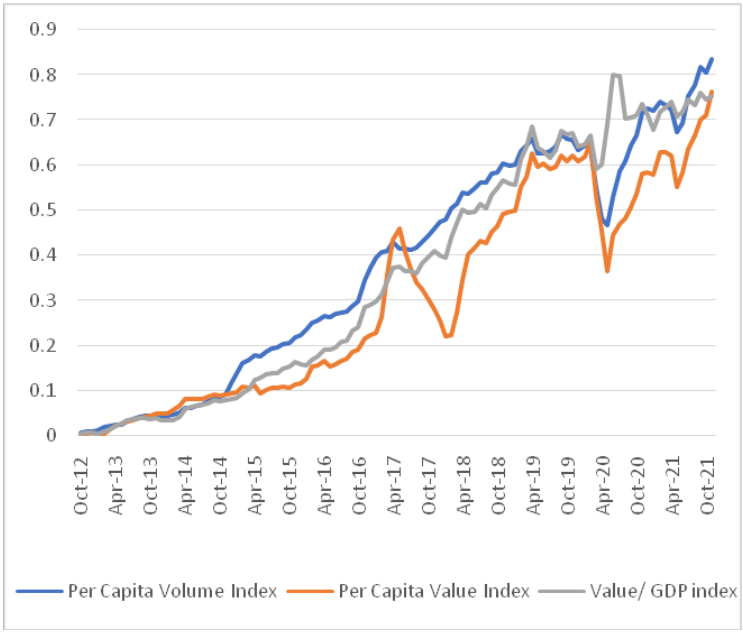
IMPS transactions is not so prominent in contrast to the POS transactions. All Three measures of IMPS transactions declined during the period of the pandemic, but all three

measures recovered a few months later, which could be the reason for the promotion of contactless transactions using mobile phones and the internet. Figure 6 represents three types of ECS+NACH transactions together, the per capita value of ECS & NACH transactions and the value of ECS & NACH as a proportion of GDP have increased steadily over time. In the case of only the per capita value of the ECS+NACH transaction, there is a visible temporary increment in the trend line after the demonetization period, and there is a visible decline in the trend line during the period of the pandemic, in case of all three measures of ECS+NACH transaction, comparatively more in case of Per capita number of ECS+NACH transaction. The decline in the trend line has improved partially but doesn't come back to the previous trend, the same in the case of all three measures. However, the number of ECS and NACH transaction per capita shows a sudden increase near March 2015 and it could be considered as an effect of the PMJDY policy of 2014.

IV. 2. Analysis of indices

In the present section we analyze the trend of the indices. The previous section clearly establishes that the individual dimensions of cashless transaction show sufficient variation on their trendsover the period. So, it is important to study the overall trend of the cashless transaction by combining the individual dimensions into an index. As already mentioned, we have constructed three alternative indices to study the trend in the cashless transaction specially to capture the effect Covid-19 Pandemic and compare the effect withdemonetization and post period policy changes. Figure29 shows the trends of the three indices. From figure 29 we observe that the per capita value index of the cashless transaction increased smoothly till November 2016. But, after the demonetization in November 2016 the index shows an abrupt increase, that is, the immediate effect of the demonetization was to push up the overall value of the cashless transaction of the economy, as is expected. As the government banned the highest currency notes from 8th November 2016 and the ATMs went cashless for long periods, people who had the means, were forced to use the electronic medium for the transaction. However, the point to note is that the demonetization could not create a permanent impact as the index reverted to the trend after a few months. With the starting of 2019 the trend line of per capita valueindex starts increasing beyond trend

Figure 29: Graphical Plot of Three Different Indices



Source: Own.

but with the starting of pandemic period there is a sharp decrease in the trend line but it started improving after few months. Value GDP index shows fluctuations. But after the pandemic hit there is a sharp increment in the trend line which decreases after few months.In the case of the Per capita volumeindex of cashless transaction, there is a permanent shift in the trend line far before the demonetization period (from January 2015) right after PMJDY policy implementation, unlike the case of the other two indices. After demonetization in November 2016, the index value has gone up slightly as expected, but again the effect was temporary like the case of the other two indices, but post pandemic period the fall in the trend line is very much sharp which improved very well till date. The drop is highest for the value index and lowest for value-GDP index. But all the three indices show a recovery after wards. Also the we find that in spite of fluctuations

V. Conclusion:

To summarize, from the graphical analysis, it is observed that the effect of demonetization is most prominent in the case of POS transactions. But not so prominent in the case of other types of transactions, and there is no effect on the number of cards. Considering the post-Covid-19 Pandemic period almost all types of cashless transactions have started to recover, but don't revert to the previous trend in the case of No. of cards, POS, RTGS and ECS+NACH transactions However in the case of IMPS and NEFT transactions they reverted to the previous trend.

If we consider the indices we find that all the three indices: the value index, the value –GDP index and the volume index, we find that they all show a temporary drop at the beginning of the Covid period. However, all the indices show an improvement afterwards. Overall all the three indices show an increasing trend.

So we can come to the conclusion that the positive effect of lock down and associated measures were stronger than the negative effect of economic deceleration. The reason may lie on the effect of pandemic on income distribution. The income in the lower end was more affected by economic slowdown due to pandemic than the income towards the upper end. Since the higher income class are more prone to cashless transaction and were the class who shifted further to cashless transaction, the positive effect dominated.

Reference:

Bhuvana, M., &Vasantha, S. (2017). A mediating effect of demonetization of currency notes towards adopting cashless payment system. *International Journal of Civil Engineering and Technology*, *8*(6), 699-707.

Borzekowski, R., Kiser, E. K., & Ahmed, S. (2008). Consumers' Use of Debit Cards: Patterns, Preferences, and Price Response. *Journal of Money, Credit and Banking, 40*, 149-172.

Brown, R. L., Durbin, J., & Evans, J. M. (1975). Techniques for Testing the Constancy of Regression Relationships over Time. *Journal of the Royal Statistical Society., 37*, 149-192.

Chakrabarty, m., Jha, A., & Ray, P. (2020). Demonetization and Digital Payments in India: Perception and Reality. *Applied Economics Letters*.

Chakravarty, S. R., & Pal, R. (2010). Measuring Financial Inclusion: An Axiomatic Approach. *Indira Gandhi Institute of Development Research, Mumbai*.

David B. Humphrey, Pulley , L. B., & Vesala , J. M. (1996). Cash, Paper, and Electronic Payments: A Cross-Country Analysis. *Journal of Money, Credit and Banking, 28*, 914-939.

Drehmann, M., Goodhart, C., Krueger, M., & Boldrin, M. (2002). The Challenges Facing Currency Usage: Will the Traditional Transaction Medium Be Able to Resist Competition from the New Technologies? *Economic Policy, 17*, 193-227.

Datta S. & Roy M. (2022). Index of Cashless Transaction *Arthaniti:Journal of Economic Theory and Practice,1-33.*

Enders, W. (1995). Applied econometric time series. New York: Wiley.

Government of India. (2016, December 15). *Press Information Bureau; Government of India.* Retrieved from pib.gov.in: https://pib.gov.in/newsite/PrintRelease.aspx?relid=155418

Government of India. (2016, December 17). *Press Information Bureau; Government of India.* Retrieved from pib.gov.in: https://pib.gov.in/newsite/printrelease.aspx?relid=155605

Humphrey, D. B., Kim, M., & Vale, B. (2001). Realizing the Gains from Electronic Payments:

Costs, Pricing, and Payment Choice. *Journal of Money, Credit and Banking, 33*, 216-234.

KPMG (2020). *Impact of COVID-19 on The Digital Paymenst in India.*Klynveld Peat Marwick Goerdeler.

RBI. (2019). *Report of the High-level Committee on Deepening of Digital Payment.* Mumbai: Reserve Bank of India.

Rekha. (n.d.). *Cashless Economy: Problem & Prospect.*

Sharma, M. (2008). Index of Financial Inclusion. . *Working paper, no 215. Indian Council for Research on International Economic Relation (ICRIER), New Delhi.* .

UNDP. (2010). *Human Development Report 2010 20th Anniversary Edition; The Real Wealth of Nations: Pathways to Human Development.* United Nation Developmental Programe .

Westland, J. C., Kwok, M., Shu, J., Kwok, T., & Ho, H. (1998). Customer and Merchant Acceptance of Electronic Cash: Evidence from Mondex in Hong Kong. *International Journal of Electronic Commerce, 2*, 5-26.

World Bank (2021). *Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19*.

Appendix

Descriptive Statistics

	Mean	Std. Deviation	Analysis N
Cardsper1000	.566132	.2998490	110
PerCapNoPOS	.450451	.3221814	110
PerCapNoNEFT	.394020	.2438491	110
PerCapNoRTGS	.354613	.1868524	110
PerCapNoIMPS	.267444	.2800720	110
PerCapNoECSNACH	.424218	.2554245	110
PerCapValuePOS	.264214	.2050402	110
PerCapValueNEFT	.409230	.2572145	110
PerCapValueRTGS	.378924	.1829041	110
PerCapIMPS	.256761	.2701179	110
PerCapValueECSNACH	.354936	.2583053	110
POSGDP	.415484	.2863050	110
NEFTGDP	.457271	.2563263	110
RTGSGDP	.383646	.1393747	110
IMPSGDP	.331018	.3234872	110
ECSNACHGDP	.313019	.2155963	110

Table A1: Descriptive Statistic of All the Dimensions

Source: Own

Dimension	Variable	Coefficient	R- Square
No. of Cards per 1000 Adults	Time	0.008463*	0.810479
	GDP/GCF Deflator	8.35E-05*	0.801351
Per Capita No. of POS	Time	0.009179*	0.825811
	GDP/GCF Deflator	9.31E-05*	0.864280

Per Capita No. of NEFT	Time	0.007513*	0.965883
	GDP/GCF Deflator	7.42E-05*	0.957217
Per Capita No. of RTGS	Time	0.005362*	0.837970
	GDP/GCF Deflator	5.56E-05*	0.917013
Per Capita No. of IMPS	Time	-0.003024*	0.974810
	$Time^2$	9.93E-05*	
	GDP/GCF Deflator	8.13E-05*	0.870712
Per Capita No. of ECS+NACH	Time	0.006818*	0.724870
	GDP/GCF Deflator	6.67E-05*	0.704923
Per Capita Value of POS	Time	0.005952*	0.857395
	GDP/GCF Deflator	6.05E-05*	0.900808
Per Capita Value of NEFT	Time	0.007782*	0.931440
	GDP/GCF Deflator	7.69E-05*	0.925415
Per Capita Value of RTGS	Time	0.008784*	0.358649
	$Time^2$	-5.01E-05*	
	GDP/GCF Deflator	3.45E-05*	0.367685
Per Capita Value of IMPS	Time	-0.002882*	0.981472
	$Time^2$	9.57E-05*	
	GDP/GCF Deflator	7.74E-05*	0.849540
Per Capita Value of ECS+NACH	Time	0.007687*	0.901167
	GDP/GCF Deflator	7.26E-05*	0.817118
Value of POS/ GDP	Time	0.008454*	0.887082
	Population (Billion)	5.927707*	0.881174
Value of NEFT/ GDP	Time	0.007633*	0.902247
	Population (Billion)	5.354406*	0.896979
Value of RTGS/ GDP	Time	-0.001004	0.052808
	Population (Billion)	-0.744345	0.058631

Value of IMPS/ GDP	Time	-0.000879**	0.988677
	$Time^2$	9.38E-05*	
	Population (Billion)	6.863038*	0.925262
Valueof ECS+NACH/ GDP	Time	0.006358*	0.884805
	Population (Billion)	4.484983*	0.889580

*1% level of significant, ** 5% level of significant, ***10% level of significant.

TableA2: Dimension Wise Fitted Time Trend

Source: Own.

Correlation Matrix							
		Cards 1000	**Per Cap No POS**	**Per Cap No NEFT**	**Per Cap No RTGS**	**Per Cap No IMPS**	**Per Cap No ECS NACH**
Correlation	**Cards1000**	**1.000**	**.903**	**.881**	**.773**	**.735**	**.954**
	Per Cap No POS	**.903**	**1.000**	**.908**	**.837**	**.838**	**.881**
	Per Cap No NEFT	**.881**	**.908**	**1.000**	**.942**	**.954**	**.831**
	Per Cap No RTGS	**.773**	**.837**	**.942**	**1.000**	**.926**	**.707**
	Per Cap No IMPS	**.735**	**.838**	**.954**	**.926**	**1.000**	**.676**
	Per Cap No ECSNACH	**.954**	**.881**	**.831**	**.707**	**.676**	**1.000**
Sig. (1-tailed)	**Cards1000**		**.000**	**.000**	**.000**	**.000**	**.000**
	Per Cap No POS	**.000**		**.000**	**.000**	**.000**	**.000**
	Per Cap No NEFT	**.000**	**.000**		**.000**	**.000**	**.000**
	Per Cap No RTGS	**.000**	**.000**	**.000**		**.000**	**.000**

	Per Cap No IMPS	**.000**	**.000**	**.000**	**.000**		**.000**
	Per Cap No ECSNACH	**.000**	**.000**	**.000**	**.000**	**.000**	
		Per Cap Value POS	**Per Cap Value NEFT**	**Per Cap Value RTGS**	**Per Cap IMPS**	**Per Cap Value ECS NACH**	
Correlation	**Per Cap No POS**	**1.000**	**.943**	**.737**	**.927**	**.925**	
	Per Cap No NEFT	**.943**	**1.000**	**.678**	**.914**	**.942**	
	Per Cap No RTGS	**.737**	**.678**	**1.000**	**.526**	**.617**	
	Per Cap No IMPS	**.927**	**.914**	**.526**	**1.000**	**.958**	
	Per Cap No ECSNACH	**.925**	**.942**	**.617**	**.958**	**1.000**	
Sig. (1-tailed)	**Per Cap No POS**		**.000**	**.000**	**.000**	**.000**	
	Per Cap No NEFT	**.000**		**.000**	**.000**	**.000**	
	Per Cap No RTGS	**.000**	**.000**		**.000**	**.000**	
	Per Cap No IMPS	**.000**	**.000**	**.000**		**.000**	
	Per Cap No ECSNACH	**.000**	**.000**	**.000**	**.000**		
		POS GDP	**NEFT GDP**	**RTGS GDP**	**IMPS GDP**	**ECS NACH GDP**	
Correlation	**POS GDP**	**1.000**	**.926**	**.020**	**.908**	**.875**	
	NEFT GDP	**.926**	**1.000**	**-.016**	**.878**	**.886**	
	RTGS GDP	**.020**	**-.016**	**1.000**	**-.219**	**-.111**	
	IMPS GDP	**.908**	**.878**	**-.219**	**1.000**	**.943**	

	ECSNACH GDP	.875	.886	-.111	.943	1.000	
Sig. (1-tailed)	POS GDP		.000	.418	.000	.000	
	NEFT GDP	.000		.435	.000	.000	
	RTGS GDP	.418	.435		.011	.124	
	IMPS GDP	.000	.000	.011		.000	
	E C S N A C H GDP	.000	.000	.124	.000		

Table A3: Correlation Between Dimensions

Source: Own.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.253	87.555	87.555	5.253	87.555	87.555
2	.526	8.772	96.327			
3	.099	1.644	97.971			
4	.071	1.186	99.157			
5	.041	.678	99.834			
6	.010	.166	100.000			
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.302	86.037	86.037	4.302	86.037	86.037
2	.551	11.018	97.055			
3	.068	1.370	98.425			
4	.059	1.186	99.611			
5	.019	.389	100.000			
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.718	74.352	74.352	3.718	74.352	74.352
2	1.028	20.567	94.920	1.028	20.567	94.920
3	.136	2.726	97.646			
4	.087	1.738	99.384			
5	.031	.616	100.000			

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.253	87.555	87.555	5.253	87.555	87.555
2	.526	8.772	96.327			
3	.099	1.644	97.971			
4	.071	1.186	99.157			
5	.041	.678	99.834			
6	.010	.166	100.000			
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.302	86.037	86.037	4.302	86.037	86.037
2	.551	11.018	97.055			
3	.068	1.370	98.425			
4	.059	1.186	99.611			
5	.019	.389	100.000			
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.718	74.352	74.352	3.718	74.352	74.352
2	1.028	20.567	94.920	1.028	20.567	94.920

Extraction Method: Principal Component Analysis.

Table A4: Principal Component Eigen Values

Source: Own

Component Matrix[a]

	Component 1	
Cards1000	.934	
Per Cap No POS	.956	
Per Cap No NEFT	.983	
Per Cap No RTGS	.924	
Per Cap No IMPS	.915	
Per Cap No ECSNACH	.899	
	Component 1	
Per Cap Value POS	.982	
Per Cap Value NEFT	.972	
Per Cap Value RTGS	.750	
Per Cap IMPS	.945	
Per Cap Value ECSNACH	.967	
	Component 1	2
POS GDP	.959	.142
NEFT GDP	.955	.109
RTGS GDP	-.116	.991
IMPS GDP	.972	-.118
ECSNACH GDP	.962	-.011

Extraction Method: Principal Component Analysis.

2 components extracted. .a

Table A5: Factor Loading of Different dimensions.

Source: Own.

Computation of Monthly GDP

First, we collected the quarterly growth rate data from the same source. Now to find out the monthly growth rate 'r' we have divided the quarterly growth rate G by 3 i.e. r = G/3.We assume that the GDP has grown at this (g) constant monthly growth rate over the months. So

$$Y_2 = Y_1(1+r)$$

$$Y_3 = Y_1(1+r)^2$$

Where Y_1 is the monthly GDP of the 1st financial month $Y_2$is the monthly GDP of the 2nd financial month,Yis the monthly GDP of the 3rd financial month, such that $Q_1 = Y_1 + Y_2 + Y_3$. So, substituting the values Y_3 into previous question we have

$$Y_1 + Y_1(1+r) + Y_1(1+r)^2 = Q_1$$

$$or, \quad Y_1 = \frac{Q_1}{1 + (1+r) + (1+r)^2}$$

Given r and Q we solved for Y. Once we have the value of Q we easily generate the values of rY_2 and YY_3. Similarly, we have the values of the other months' GDP.

BANGIYA ARTHANITI PARISHAD
(BENGAL ECONOMIC ASSOCIATION)
EXECUTIVE COMMITTEE: 2020-23.

Office Bearers :

President :Professor Biswajit Chatterjee, Retired Professor of Economics,Jadavpur University,Kolkata-700032.

Vice-Presidents(2) : a. Dr.Ruma Bhattacharyya, Principal,Bijoykrishna Girls College,Howrah
b. Prof. Arpita Ghose, Professor of Economics, Jadavpur University, Kolkata-32.

Secretary : Dr. Subrata Kumar Ray, Principal ,Prabhu Jagatbandhu College,Andul,Howrah-711302.

Treasurer :Sri Tapan Purkait,Netaji Nagar College, Kolkata.

Joint Secretaries :

1.Dr. Mou Roy,Associate Professor of Economics,Lady Brabourne College,Kolkata.

2. Dr. Sudip Jana, Baramahara Jatindra Vidyapith,Howrah-711401.

3.Dr Satarupa Bandyopadhyay, Associate Professor, Department of Economics, Bethune College, Kolkata-700006.

4. Dr. Dipyaman Pal : Assistant Professor, Department of Economics, Bethune College, Kolkata-700006.

Other Members :

Dr. Gopal Ch Mandal , Associate Professor, Dept of Economics, Prabhu Jagatbandhu College, Andul, Howrah .

Dr. Maitri Ghosh , Associate Professor, Department of Economics, Bethune College, Kolkata-700006.

Dr. Susmita Banerjee , Associate Professor , Department of Economics, Charu Chandra College , Kolkata.

Prabal Dasgupta : Associate Professor of Economics, Acharya Girish Chandra College,Kolkata-700009.

Dr.Purba Chattopadhyay, Associate Professor of Economics, Department of Home Science, University of Calcutta.

Sri Atish Basu,Assistant Manager, PNB, Dum Dum Branch.

Dr. Sanjay Bhattacharya, Visiting Faculty, RBU.

Sm. Rupkatha Mukherjee, Assistant Professor of Economics, Bijoy Krishna Girls' College,Howrah.

Dr.Purba Roy Choudhury, Associate Professor of Economics, Bhawanipur Education Society College,Kolkata.

Dr. Srabanti Bhattacharya ,Principal, Saheed Anurup Chandra Mahavidyalaya,Kolkata

Dr,Sujatra Bhattacharya, Associate Professor of Economics, Sris Chandra College,Kolkata- 700003.

Dr. Jayeeta Paul, Faculty Member, Department of Commerce, Netaji Nagar College, Kolkata.

Sm. Sakhi Roy, Faculty Member, Department of Economics, Amity University, Kolkata,

Vacant.

Vacant.

Co-Opted Members :

1. **Dr. Asim K. Karmakar, Netaji Subhas Open University, Kolkata , and Formerly of Jadavpur University, Kolkata-700032.**
2. **Dr.Sudip Kumar Ghosh, Associate Professor of Economics ,Bidhan Nagar Govt. College,Kolkata.**

Vol. 32, No. 1 & 2
June and September, 2023 ARTHA BEEKSHAN RNI NO.53099/92

Published by Secretary, Bangiya Arthaniti Parishad, 87/277, Raja S. C. Mallick Road, Ganguly Bagan, Kolkata - 700 047.
Printed by Tamojit Bhattacharya, Kolkata Mudran, 12, Biplabi Pulin Das Street, Kolkata -700009, Phone: 9123018766, e-mail : tamojit.kolkatamudran@gmail.com