Journal of
Agriculture, Food and Sustainable Development
econsciences.com
Volume 1 September 2025 Issue 1

Transformation of Indian agriculture after neoliberal reforms: Growth, employment, and food security challenges

By Renattari BURTANIRRI †

Abstract. This paper investigates the structural transformations in India's agricultural sector following the neoliberal reforms introduced in 1991. Although agriculture still provides employment for a significant share of the population, recent years have seen a considerable slowdown in its growth rate. The sector currently faces an unprecedented crisis marked by low productivity, rising rural unemployment, and increasing food insecurity. In the past, agricultural investments were largely driven by the availability of credit and subsidies for modern inputs, particularly during the period of "social and developmental banking" between 1969 and 1980. However, with the onset of liberalisation, the government shifted its stance, advocating for a more commercially driven banking sector, which reduced institutional support for agriculture. While India has achieved an average GDP growth rate of around 7% over the past 25 years, this aggregate figure masks the sectoral disparities. The agricultural sector's growth has lagged far behind that of manufacturing and services. Unlike the East Asian experience, where industrial sectors absorbed surplus agricultural labor, India's manufacturing sector has not expanded sufficiently to provide alternative employment opportunities. As a result, rural areas have been left vulnerable, with persistent underemployment and worsening living conditions. This paper emphasizes the importance of a nuanced sectoral analysis to truly understand the impacts of economic liberalisation. Revitalizing the agriculture sector through targeted public investments, institutional reforms, and strengthened rural support systems is crucial for achieving inclusive and sustainable development.

Keywords. Agricultural governance, New Institutional Economics, Contractual arrangements, Farm management, Transaction costs.
JEL. Q12, D23, Q18.
SDGs. SDG2, SDG2.

1. Introduction

The aim of this study is to analyse the changes taking place in the agriculture sector in the Indian economy over the last few decades. A great deal of attention paid to economic growth rates in India in recent years, while the on-going agrarian crisis is being ignored. During the last two decades the agriculture sector has witnessed crisis in such as decline in rates of growth, rising numbers of farmers' suicides, declining prices of several crops, and a widening gap between the agriculture and non-agriculture

† Agricultural Policy and Environmental Governance, Kassel University.

sectors.The agriculture sector is experiencing unprecedented crisis with stagnation or declining rural employment growth and as a result, food security and employment opportunities for the rural poor have been eroded.

This study is important because the agriculture sector plays an important role in the Indian economy and its better performance is crucial for inclusive growth (World Bank, 2006). This sector at present contributes only 17% of the GDP, while it provides employment to 57% of the Indian work force. Moreover, the forward and backward linkage effects of agriculture growth have positive effects on other sectors as well. One of the major problems of the Indian economy is that the decline in share of agricultural workers among total workers has been slower as compared to the decline in the share of agriculture in GDP. The share of agriculture in GDP decreased from nearly 60% in 1951 to 25% in 2000 and 20% in 2005 and further to 17% in 2013. However, between 1950 and 2010 there was a nearly 40 percentage point decline in the share of agriculture in GDP, while the decline in share of agriculture in employment was only 18 percentage points (Mishra, 2013; Government of India, 2010; Dev, 2008).This means that labour productivity in agriculture has increased at a much lower rate compared to other sectors.

Moreover, despite achieving rapid growth after the adoption of the neoliberal economic reforms and joining the BRICS fast growing economies, India's economy is in a strange position. The manufacturing sector has not taken the lead as has happened more recently in China and other East Asian economies. Services account for over half of GDP, with the agriculture sector accounts for only 17% of GDP, while employing more than half of the total labour force. Over 90% of agricultural employment is in the informal sector, a mere 6-8% in the formal sector of which two-thirds is government jobs. After more than sixty five years, the promise of successful industrial development to dent the unemployment menace remains unrealised. The slow growth of the industrial sector and diversification away from agriculture to industry has been a clear failure in India. India lags behindother developing countries in the industrial sector's contribution to GDP, for instance 25% in India, 46% in Brazil, 44% in China, 40% in Malaysia in 2010.

The rapid GDP growth rates in the Indian economy still have not addressed the basic needs of the rural poor. The food security of the population has not improved and nutrition indicators have stagnated and per capita calorie consumption has not improved, if not declined. As the National Family Health Survey (NFHS) data of 2006 indicate, "46% of the children below three years are underweight; 33% of women and 28% of men have Body Mass Index (BMI) below normal; 79% of the children aged 6-35 months have anaemia, as do 56% of ever married women aged 14-49 years and 24% of similar men; and 58% of pregnant women. The national averages mask location differences: all these indicators are much worse in rural India" (quoted in Ghosh, 2010: 33).

The government has claimed to have bought down poverty levels in rural areas, which is widely disputed. Still large numbers of people are poor and

the deprivation and disparity persists, which is also reflected in the access to basic facilities, such as toilets, drinking water and electricity. According to official data in 2010, only 18% of all rural households had access to these basic facilities, despite the National Rural Employment Guarantee Act (NREGA), the world's largest employment guarantee scheme which the then ruling Congress Party launched in 2009 to raise its electoral performance (Government of India, 2013). Compared to the pre-reform period, India's average nutritional standard is now significantly lower. Its food grain consumption for all purposes has dropped steeply to one of the lowest in the world – lower than average Sub-Saharan African. While 23.5% for all urban population could not access even the very low level of 1800 calories daily in 1993-94, by 2009-10 the proportion rose to 32% in modern urban centres such as Mumbai and Kolkata (Sen, 2003; Ghosh, 2010).

A number of studies have pointed out that Indian agriculture has not performed well, especially since 1994 (Dev, 2008).India has 40% more cultivable land than China, but average agricultural yields are 50% lower than China. Although India's population is younger and growing faster than China's, but demographic dividend is utilised.

It is acknowledged that growth in agriculture declined in the 1990s compared to the 1980s.Since the mid-1990s growth of output has declined for both foodgrains and non-foodgrains. The largest decline was witnessed in oilseeds, which fell from 5.2% per annum in the 1980s to 1.6% per annum in the mid-1990s.Land areas under rice and cotton experienced higher growth rates of nearly 2% per annum. However, during 2001-2010 all crop growth output declined and the decline in food crops was higher than for non-food crops (Government of India, 2007; 2013).

During the pre-reform period 1950-1990, agricultural growth rates were higher than population growth rates. Just prior to the launching of neoliberal reforms i.e. 1980-90, agricultural output grew at 4% annually and India was self-sufficient in food and even exported rice and wheat. Since the economic reforms agricultural growth was reduced to around 1.5% per annum. As a result, food grain availability decreased and India began importing food grains at much higher prices than the domestic market prices.The agriculture sector became less profitable due to a fall in food grain prices, which led to decline in areas under cultivation, as non-foodgrain crops required more capital intensive inputs and this could lead to further decline in rural employment. According to the NSS, the annual rate of growth of the employment in the rural areas was 2.07% in the 1980s, which decreased to mere 0.66% in 1992-2002 (NSS, 2003).

Government spending in agriculture has been reduced to meet World Bank and IMF recommendations. For example, the government spending on rural development including agriculture, irrigation, flood control, village industry was reduced from 14.5% in 1985-90 to 6% in 1995-2001. On irrigation, annual growth in spending was 2.6% in the 1980s, which was reduced to just 0.5% per annum in 1992-2008. Since 1992 the government has cut subsidies, and as a result the cost of production has increased. Bank

loansare not easily available; this has forced farmers to rely on money lenders, which has further increased the cost of borrowing especially for small and marginal farmers. When farmers are unable to pay back loans with high interest rates, they are drawn into a debt trap.

Recent successful examples in East Asian countries show how governmentsestablished close cooperation with producers and also with the economically vulnerable sections of the rural society to manage crop distribution. The strategy proved to be feasible and ensured transition from poor economies in the 1950s to middle income statuseconomies in the 1980sfor example in South Korea and Taiwan. In the East economies the government intervened because the Cold War created more favourable external linkages as they were seen to be more crucial allies. The Cold War offered these countries better access to western markets and technologies than those available to any other developing country. Such experiences clearly tell us that the right kind of government intervention could be crucial to foster industrialisation in the developing countries. The government secured tenancy rights, also took initiative to invest in agriculture to boost productivity and output. Thus, agriculture sector played an important role towards their transformation into modern economies and the growth was generated through the combination of rapid improvements in agricultural productivity via rapid physical and human capital accumulation.

Agriculture and allied sector's contribution to national income has been declining over decades. For instance, from 44.8%to the GDP in 1972, it declined to 27.6% in 2000. In industrialised countries, rise in income in the manufacturing sector initially and later on in the service sector haveemerged. However, this was accompanied by a transfer of people from agriculture to the new expanded sector. Yet in India, the decline of the agriculture sector did not lead to growth in jobs in other sectors. The proportion of population dependent on agriculture has fallen little i.e. from nearly 74% in 1972 to 60% in 2010. The relative share of agriculture is less than one-fifth of that in non-agriculture (Government of India, 2013).

In today's advanced countries the trajectory of growth has seen a shift of the rural labour away from agriculture towards growing industries with the sectoral composition of domestic products changed with greater weight on manufacturing. In India, however, during the post reform period of rapid GDP growth, the agriculture contribution has declined drastically, while the population to support it has changed a little. In 2012, the sectoral composition of output shows not the expansion of the manufacturing sector, but a rapid growth of the tertiary sector, with services now contributing to more than three-fifths of GDP.

Irrespective of current class divisions within the agrarian society, the real beneficiaries of rapid growth in the post-reform period have been largely in the service sector e.g. service professionals and entrepreneurial classes, real estate and urban property dealers, and large farmers. Large farmers have diversified their source of income e.g. real estate, trading, urban property etc. On the other hand, small farmers and rural labourers, who have been forced

to migrate under 'distress' to towns, are mostly employed in the informal sector on low wages and insecure jobs (Vakulabharanam and Motiram, 2011). Rural migrant workers have been bypassed despite rising prosperity mainly because they are engaged in a low productivity sector and their wages are depressed in the absence of organised unions. Rural migrant workers in India make a contribution to the process of capital accumulation because their wages for labour are fixed at the lowest level in an arbitrary manner.

2. Historical Legacies

At the eve of independence in 1947, the state of Indian agriculture was extremely backward. Colonial rule had greatly weakened the agrarian economy, which was characterised then by severe pre-capitalist modes of exploitation. During the first half of the 20th century, the agricultural output rose as a miserable rate only 0.9% annually. Per capita food grain production was less than 150 kilograms in 1947. There was significant presence of per-capitalist relations of production from large feudal estate to the most exploitative forms of tenancy and bonded labour.

India was integrated into the metropolitan capitalist system, which not only extracted surplus value, but also imposed international division of labour along with the unequal terms of trade for primary products required for expanding industrial sector in Britain. During the colonial period large parts of land were converted into the production of cash crops such as indigo, coffee, tea and the poppy to produce opium. As Brown argues, "Britain's Indian empire, where cotton, jute, coir, timber, tea and tropical fruits were grown for export, often at the expense of food crops." (Brown, 1993:17).The long term impact of such policies was the productive system of the whole society was kept backward. Agriculture re-assessment and drive to maximise revenue was introduced by the colonial administration through land revenue systems such as *zamindari*, *ryotwari* and *mahalwari* (Thorner & Thorner, 1962).

As a result the peasants were forced to borrow in order to meet the high revenue demands. Large revenue demand from peasants left them with little or no surplus to re-invest and had to rely on merchants cum money lenders for cash. As a consequence, indebtedness and landlessness increaseddurin the colonial period despite the introduction of commercial crops (Thorner & Thorner, 1962). Agrarian society remained tied to the oppressive*zamindari* or high revenue demands under *ryotwari* system of land revenue collection in colonial period. The autocratic feudal and princely rule was over large parts of the country, which undermined any move towards change (Patnaik, 1997).

The legacy of colonial rule was not only left backward agriculture and industrial economy, but also the whole social structure which was based on low material productive forces, reflected all the features of feudal society (Thorner & Thorner, 1962). As Patnaik argues, "Preservation in many instances of pre-capitalist relations and classes in the interest of metropolitan

capital"; and further asserted that colonialism "did not require the destruction of the existing pre-capitalist formations" (Patnaik, 1984: 1086). Thus, the colonial rule had transformed Indian economy to be suited to the British imperial interests, which resulted in a stagnating agriculture, weak industrial base and very low literacy rate in the first half of the 20th century. In agriculture sector, the production of cash crops such as coffee, tea, indigo, jute and poppy to produce opium to export to China. As a consequence, India emerged in 1947 with one of the lowest per capita incomes and a large proportion of the population under the poverty and malnutrition. As Nayyar, summarises, "There are two sets of growth rates for the period 1900-01 to 1946-47 based on two different estimates of national income. The Sivasubramonian estimates suggest that, in real terms, the growth in per capita income was 0.2 % per annum. The Maddison estimates suggest that the growth in national income was 0.8% per annum, whereas the growth in per capita income was almost negligible at 0.04% per annum" (Nayyar, 2006:1452-53).

Ranade analysed the Indian economy in the late 19th century in a historical and comparative perspective and tried to relate Indian economic problems to the historical experience to other countries. He emphasised two key difficulties India facing then, such as its deteriorating economic conditions and growing poverty (Chandra, 1990). In *ryotwari* areas the state directly taxed the peasantry and in these areas the system of assessment and the amount of land revenue charged became the subject of concern. Ranade criticised the high rate of land revenue assessment made by colonial administration, undue upward revision during the periodic re-assessment and rigid system of revenue collection. The extremely high revenue demand was seen as the prime cause of Bengal Famine of 1770s, when one-third of its population died (i.e. 10 million people) (Bagchi, 1982; Dutt, 2001). According to Ranade, the policy was the key contributing factor of the poverty of peasants and the backwardness of agriculture and occurrence of frequent famine in India. In the *zamindari* areas, the actual tenant was a cultivator who paid rent to the *zamindar* out of which the latter paid land revenue to the colonial administration. Peasantry was pushed into huge indebtedness and mortgaged land to money lenders and merchants and resulted in reducing the status of tenants-at-will on their own land (Chandra, 1990).

During the 1930s in India, government's non-intervention policy was adopted and as a consequence agriculture prices were collapsed leading to huge increase in peasants' indebtedness and malnutrition, rural poverty and Bengal famine of 1943, which claimed 4 million lives. Kindleberger (1987) argues in the context of 1930s Great Depression that relationship between agricultural and industrial crisis had deepened the crisis. According to him, due to deflationary policies undertaken by the cuts in public expenditures did not help, while then private sector failed to take any initiative, and the governments in industrialised countries were committing itself with 'sound finance' (also known as balance budget), in the line with the demand of international financial capital (Kindleberger, 1987).

3. The Post-independent Experience

There is no doubt that the performance of agriculture in the post-independence has been far better than pre-independence period. For example, all crops output growth was nearly 2.7% annually in the post-independent period between 1950 and 1990, which was much higher than the negligible growth rate of only 0.9% annually during the first half of the 20th century (Dev, 2008). However, the Indian agrarian economy has transformed over the last six decades. The land reforms of the 1950s and 1960s had varied impact in different states. The size of ownership holdings has changed since independence mainly because of land reforms, demographic pressures and land through sale. The land reforms initiated in the 1950s-1960s failed to completely break the land monopoly, but it places some limitations on the power of landed elites in rural society. Moreover, tenancy reforms did benefit small and middle farmers in various parts of India.

India's first Prime Minister Nehru embarked on state planning and building of the public sector, which was fully supported by Indian bourgeoisie, to lay the foundation of the post-independent developmental policy in India. To build public sector help was sought from Soviet Union, which provided bitautonomy from the metropolitan capital. However, industrialisation and modernisation in the absence of radical land reform and compromising with the feudalism, along with the fostering with monopoly capital led to a number of contradictions, resulting in the mid-1960s into food shortages, balance of payment crisis and slowing down of growth rates. Unequal distribution of land could adversely affect agricultural productivity growth, at the same time the rural elites may not have adequate incentives to invest, while the small and marginal farmers do not have surplus to invest. Hence, the rural incomes will not rise and could lead to stagnation in the demand for industrial goods. As result, the producers would begin to look to foreign markets which would require collaboration with multinational firms.

Some suggest rather than focusing on industrialisation should have emphasised on export strategy. However, they ignore that at the eve of independence, India had a poor industrial structure and export then could have taken primarily of just of cotton textile products. By increasing the focus on export of growth of such products as means of rate of growth, would have meant greater emphasis on agro-based commodities. However, it would have increased food insecurity and shortages because of possible diverting land and resources away from the production of foodgrains. Experiences of the Thailand and Central American countries clearly show that such policy of increased dependence of foreign markets had failed to achieve the removal of poverty, inequality and food insecurity.

A number of studies on the farm size and agricultural productivity indicate how small farmers actually have achieved higher yields than large farmers in different contexts (Sen, 2003; Rao andStorm, 2003; Herring, 1983). There are various examples of positive contribution made by small farms

across different contexts and different periods. For example, it is well known now that English yeoman farmers had played significant role and successfully contributed to the efficiency gains during the 15th and 16th centuries rather than enclosure movement. And also more recently, the success of small farmers in East Asian economies especially in Japan, South Korea and Taiwan not only raising the yields and increasing agricultural output but also creating employment in rural sectors (Herring, 1983).

There were limited attempts to land reforms in the 1950s and 1960s, including legislations on abolition of large absentee land ownerships and some tenurial reforms. Despite the differences in the actual implementation at state levels, overall the impact of the land ceiling legislations were largely ineffective in breaking up land monopoly and concentration of land. However, it did bring some positive changes in rural areas and largely removed large absentee landlordism. Increase investment by the government in irrigation, power and rural development and some changes in agrarian structures did lead to more rapid growth in agricultural output. For example, between 1950 and 1965, the food grain output grew at average 3% annually, while agricultural output as a whole grew 3.3%. Also the government fixed minimum support and procurement prices for a number of crops, which did help the farmers. The government also undertook price stabilisation operations for a number of crops to protect both consumers and producers from extreme price fluctuations (Ghosh, 2010).

In the mid-1960s 'green revolution' was introduced on the basis of certain selected regions and aimed at large cultivators, who had money to invest in new technologies e.g. tractors, tube wells, electricity, new seeds, fertilizers, etc. The government also aimed to raise agriculture output and become self-sufficient in food production and finally do away with food shortages. It also means a departure from the previous efforts to implement more egalitarian rural policies through land and tenancy reforms in early 1950s and 1960s. Availability of credits to farmers is an important determinant of investment in agriculture. Since the nationalisation of commercial bank in India in 1969, the country had followed the policy known as 'social and development' banking. The banks emerged as important sources of finance to the agricultural sectors (Shetty, 2006). It undertook clear policy towards branch licensing policy and the banks were required to open branches in rural areas. As a result of policy changes, the number of rural branches rose from just 1443 in 1969 to 35,134 in 1991. The government also prioritised rural sector lending and most important point is that the loans were provided at concessional interest rates to small farmers. Therefore, the small and medium farmers were able to invest in green revolution technologies in 1980s. Also during the 1980s government took initiative to gradual diffusion of technologies to other regions, especially into the semi-arid regions that comprise more than 40% of the total cultivated land in India and also to other cultivators (Harriss-White & Janakarajan, 2004).

The 'green revolution' has also increased the involvement of cash and markets both in terms of exchange and investment in rural economy.

Moreover, the land concentration is no more as use to be few decades ago. In agriculture 63% of the farmers own landholdings less than one hectare. Sharecropping arrangements in most states has been largely replaced by the use of wage labour in agriculture production. In some prosperous agriculture regions such as Punjab, Haryana and Western UP there is a tendency towards "reverse tenancy" in which small farmers lease out their land to larger farmers. However, the significance of landownership as the basis of social status and political power in terms of controlling village affairs has not diminished, especially in north India.

Since early 1990s agriculture's share in national income has declined considerably. Though a large majority of the Indian people continue to live in the rural areas, but the share of agriculture to the national income has declined to less than one-fifths. The growth rate in agriculture sector has also been much slower than the other sectors of the Indian economy. However, declining share of agriculture is known as 'natural' process of development. With the modernisation and development of manufacturing and services, agriculture sector has declined, as happened earlier in the West and most recently in the successful East Asian economies. Kay (2009) argues that unlike Latin American countries, the state in South Korea and Taiwan changed class relations by curtailing the powers of large landholders and thus created the economic and political conditions favourable to industrialisation. However, in India it is happening very unique development. The decline in agricultural contribution into the GDP is not accompanied by a similar degree of employment expansion in manufacturing sector (Mishra, 2013).

After the neoliberal policies were adopted, the rate of agricultural growth slowed down, and also there was a marked shift in the land use and cropping pattern towards export crops at the expense of food grains crops. The food grain growth rate dropped down to half i.e. 1.8%. It fell below the population rate. A substantial shift in the cropping pattern took place as trade was liberalized. According to statistics seven million hectares of food grain land was diverted to cash crops by the late 1990s, as a result, exports of cash crops were higher. The main crops in which cultivation area expansion took place were mainly cotton, sugarcane, soybeans, horticulture and prawn farming in coastal areas. With lifting of the export bans, large number of small farmers hoping to raise their incomes rapidly expanded the area sown and easily offered capital by the traders, diverted areas to cash crops form millets. During that period million hectares of rain fed lands in Andhra Pradesh and Maharashtra had been transferred to the cultivation of cash crops (Government of India, 2013).

Punjab state in India is rather a small state occupying just less the 2% of the total geographical area and inhabiting a little more than 2% of the total Indian population. Until recently Punjab was seen as the most dynamic and progressive state in India, particularly for its success in the agrarian sector. Punjab was the main state where green revolution was launched, primarily it came to be identified with the green revolution and from here later on it

was launched to other parts in India.The data on agricultural growth shows that among all the states of India, Punjab's agricultural growth rate was highest during the 1960-1986. During the same period, the annual growth rate of increase in production of food grains for the state was more than double than that of India as a whole.The percentageof High Yielding Varieties (HYV) of seeds in total area under food grain in Punjab state was quite high73% in 1975 (compare to 31% for all India), which rose to 95%in 1985 (all India 54%) (Government of Punjab, 2004; World Bank, 2004) This also helped India to solving the immense problem of food scarcity (Tyagi, 1990).

The policy of neoliberal reforms meaning macroeconomic contraction and income deflation. As the central government in trying to reduce the ratio of budget deficit to GDP, restrain on wages and devaluation is the obvious policies to be followed. Neoliberal polices include deflating policy package at macroeconomic levels. The new liberal economic policy advocates withdrawal of the state from economic sphere and leaving to the market forces to play greater role. The government liberalisation policies in banking sector were questioned. The points were raised that the banks should function on commercial and profitability basis alone. The changes in government policies led to fall in the real amount of the lending to the small and medium farmers. However, in 2004 - 05, despite some increment in the money available to the banks for lending to agriculture sector, the large proportion went to large farmers rather than small farmers (Chavan, 2007). Moreover, the adoption of neo-liberal policies since 1991 has led to inequalities in income and wealth being exacerbated and it also heightened extremists and religious sentiments in India. The rise of size of the urban middle class has created an expanding social base for the Hindu right and reactionary politics. The middle class represent 15-20% of the India's population. They have benefitted largely with the 'anti-dirigiste' phase of the pre-reform period of the 1980s. They have become more frustrated and feel insecure since social pressure from below is much greater and the top elites only appeal to them occasionally

Just experiencing high growth rates, as India has experienced GDP growth rates of average 7% for the last nearly quarter of the century. However, by only emphasising on the overall growth rate can be misleading, as it does not tell us about the sectoral us about sectoral composition of growth. It is very likely for the material productive sector to stagnate while non-agricultural sector particularly grows, as has been the case with India's growth experience since the neoliberal reforms were undertaken.For the last two decades both food grains and non-food grains growth decelerated sharply, with a structural shift away from food grains as 8 million hectares of shown area went out from grain production to commercial crops within a stagnant total shown area (Government of India, 2010). Therefore, the new liberal economic policy advocated withdrawal of the state from the economic sphere, leaving market forces to play a greater role in the agriculture sector. It was intended that domestic producers be allowed to import freely new

technology in order to raise competitiveness and efficiency. However, applying these policy measures could be disastrous for agriculture (Dev, 2008).

It seems that worrying scene is emerging in the agriculture sector. The growth rates are declining and lower thanduring the pre-reform period. At the same time, the increasing integration of India into the world economy and as a result, the country is aspiring to emerge as an exporter of the agricultural products would divert further land and other resources to the cultivation of non-food products. The cereal production and consumption per capita is declining an alarming trend, while India still suffering from significant rates of malnutrition. In addition to reducing subsidies of various kinds and formal credits are leading to a rising of farmers' suicides in recent years (Patnaik, 2003).

4. Deepening Crisis in Agriculture Sector

Indian agriculture has witnessed deepening crisis since mid-1990s such as agriculture has grown at much slower pace and rural poverty continues to be high and rural inequality has increased. The impact of growth has been unevenly distributed among rural communities and certain sections have managed to do better than others. For instance, the large farmers have done relatively better, while small and marginal farmers have experienced the opposite.

Agriculture has been growing at slower rates in the post-reform periods compared to pre-reform period. See Table 1, 2 and 3. The average agricultural growth rates during the 1991-2005 was 1.9% annually, which is much lower compared to figures of 3.4% for 1980-1990. During the 1980s both food and non-food growth rates were higher than 1990s. In fact agricultural output can be increased through increase in either input uses or productivity. It seems such policies have run out of steam.It seems that growth slowed down due to decreasing rate of returns over time. In the semi-arid areas, the water levels have declined, while salinization and soil erosions have increased.

Green revolution methods of cultivation are capital intensive as it leads to higher dependence on credits both formal and informal. The prolonged agrarian crisis since mid-1990s have reflected in the rise of the farmers' debts and much higher concentration of land, with top most 5% of rural inhabitants now accounting for nearly half of the all owned land, and this group has particularly gained at the expense of all other rural groups. More importantly, even small and marginal farmers are being integrated into market economy through the cultivation of cash crops and increasing use of modern technology and due to reduction in the availability of formal credits, they are often getting trapped of vicious cycles of debts. This is being seen as a major cause of farmers' suicide death in India.Domestic and international non-food prices have largely been converged. And also "price scissors" effect has come into play, particularly in the case of non-food crops. The decline of process of non-food crops, while at the same time sown area under such

crops in India had not been reduced, meaning ultimately farmers have to face the burden of falling prices. At the same time the costs of production has risen due to rise in input prices and decline in government subsidies on inputs.

Between 1966 and 1991, along with the structural change, the agriculture has seen continued growth. Yields have increased along with the levels of irrigation, use of new high yielding seeds, chemical fertilizers and pesticides. However, this output growth was uneven both among the various sections of the farmers and region wise. But it did experience slowing down when public investment was cut down along with investment in irrigation, availabilities of subsidies and formal credits, after the introduction of neo-liberal economic reforms (Lercheet al, 2013).

On the question of inter-sectoral growth rates, as Figure 1 shows that agricultural growth rates have been much lower than the non-agriculture sector. The figure indicates that growth rates in non-agricultural sector have been faster than agricultural sector between 1997 and 2011. However, within the non-agricultural sector, the service sector has been growing much faster than service.

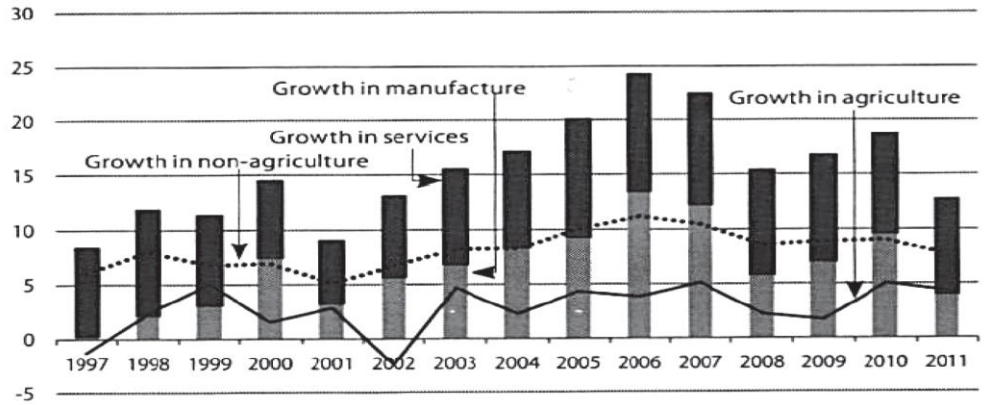

Figure 1. *Sectoral Growth Rates in the Indian Economy: Agriculture vs. Non-Agriculture*
Source: Government of India; *Economic Survey*, 2013; (www.indiastats.com); Mishra 2013:55.

Table 1 shows that the share of agriculture to GDP has declined and also the percentage share of agriculture in employment, but the decline of the share of agriculture in employment was much slower. In most recent years, rural migration continued to rise as they were not being absorbed into industrial employment and were swelling the ranks of the slum dwellers, and became part of the expanding urban informal sector. The prevailing situation in India is far from the optimism as showed by Arthur Lewis's theoretical model in the past.

Table 1. *Share of agriculture in GDP and Employment in India*

Year	Share of agriculture in GDP at 1999-2000 prices (%)	Share of agriculture in employment (%)
1950-51	56.70	85.0
1960-61	5248	77.3
1970-71	46.00	63.9
1980-81	40.00	60.0
1991-92	34.04	57.1
2002-2002	25.18	56.3
2011-2012	14.00	50.0

Source: National Sample Survey various years, Central Statistical Organisation, Government of India.

Table 2 shows that the rate of growth of cereals was average around 3% per annum in the pre-reform period compared to post-reform period of 1.45%. Similar trends we find in pulses and foodgrains. Contrary to this in the post-reform period witnessed an increase of almost double in the annual growth of raw cotton production and also slight increase in oil seeds.

We find differences in growth of yields among the major crops as well. See Table 3 and 4. Cereal's growth of yields has declined from an average 3% per annum to nearly half i.e. 1.61% in post-reform period. Contrary to this, yields of oil seeds and cotton has risen in the post-reform period. Table 4 shows, the area under cultivation has risen by only 0.25 during the post-reform period, which in the pre-reform period was almost similar i.e. 0.24%.

Table 2. *Annual Rate of Growth of Production of Major Crop Groups (in %)*

Crop	**1967-81**	**1981-91**	**1991-2010**
Cereals	2.56	3.32	1.45
Pulses	-0.11	1.7	0.33
Food Grain	2.29	3.2	1.37
Oil seeds	1.45	6.41	1.96
Cotton	2.26	2.06	4.37

Source: Government of India, Ministry of Agriculture, various years, New Delhi

Table 3. *Annual Rate of Growth of Yield of Major Crop Groups (in %)*

Crop	**1967-81**	**1981-91**	**1991-2010**
Cereals	2.11	3.64	1.61
Pulses	-0.59	1.94	0.42
Food Grain	1.83	3.51	1.51
Oil Seeds	0.68	3.10	1.47
Cotton	2.26	2.32	3.06

Source: Government of India, Ministry of Agriculture, various years, New Delhi

Table 4. *Area, Production and Yield of Food Grains, 1997-98 to 2006-07*

Year	Area million hectares	Output million Tonnes	Yield, kg Per Hectares
1998-99	125.17	203.60	1627
1999-2000	123.11	209.80	1704
2000-2001	121.05	196.81	1626
2001-2002	122.78	212.85	1734
2002-2003	113.86	174.77	1535
2003-2004	123.45	213.19	1727
2004-2005	120.08	198.36	1652
2005-2006	121.60	208.60	1715
2006-2007	124.07	211.78	1707
2007-2008	124.1	230.8	1860
2008-2009	122.8	234.4	1909
2009-2010	121.3	218.1	1798
2010-2011	126.7	244.5	1930
2011-2012	125.0	257.4	2059

Source: Government of India, *Economic Survey*, various issues, New Delhi

There are large regional disparities in the rates of growth in agriculture sector in India. The government statistics shows that agriculture growth rates declined between 1991 and 2010 i.e. post-reform period except for Bihar and Gujarat. In states like Jammu and Kashmir, Karnataka and West Bengal despite slow down and performance of 2.6% growth rates, it was higher than Andhra Pradesh, Assam, Punjab and UP i.e. of less than 2% per annum. However, Kerala and Tamil Nadu experienced negative growth rates during the same period (Government, 2010; Dev, 2008).

Opening of supermarkets is growing at fast rate in India in recent years. But the large farmers are able to take disproportionate share of benefits, while the competition is pushing some of the small retail stores 'perform or perish' situation. The transfer of a large agricultural surplus was a precondition for initiating a process of industrialisation in less developed countries. As Kay (2009) finds that earlier in South Korea and Taiwan the state played an important role in the process of surplus creation, extraction, and smooth transfer from agriculture to industry. It created very favourable conditions for raising agricultural productivity and building of infrastructure to benefit the overall rural economy. Trade liberalisation means leaving the growth processes fully open to private enterprise and market forces. It is expected that this would lead to a substantial withdrawal of state from the mainstream economic activity.

The World Trade Organisation (WTO), World Bank and IMF fully support "free trade" or "more liberal trade", which is based on assumption of full employment and all countries have same basic factor endowments (though in different proportions) and can produce all goods. Trade simply ensures that which country produces what is determined by their respective "comparative advantages". These assumptions are misleading because

tropical goods, which are produced in tropical climate, cannot be produced in European or temperate climate where the European countries are located.

The key elements of neoliberal reforms includes: deregulation also known as liberalisation, means removal of government regulation; sale of public assets and removing restriction on imports and exports of goods and services and finally bringing down fiscal deficit. The major consequences for agriculture sector had been reduction in fiscal deficit, meaning reduction in input subsidies leading to increase in input prices. The removal of quantitative restrictions on imports of agricultural products and as specified by WTO resulted in a sharp rise in agricultural imports in recent years.

Trade liberalisation in agriculture has been introduced since early 1990s in India with the progressive reduction of trade restrictions of various types of commodities. For instance, to begin with, export subsidies were removed from tea and coffee and subsequent reduction has taken place for other products as well. This process was accelerated during the late 1990s to bring in line with World Trade Organisation (WTO) demands. And quantitative restrictions on imports and exports on commodities such as agricultural seeds, pulses, rice, wheat, butter and ground nuts oil were removed in 2000.

By joining the WTO and integrating more with the global economy, in India the rural situation is changing radically. Some argued that the current scenario breaks the past class based perspective due to the subordination of the small producers to the international capital and re-examination is needed about the issues of class differentiation within the peasantry. As Bernstein (2006) argues that classical agrarian question makes little sense for capital. According to him, the ruling elites in the developing countries are not interested in national development as we have known in the past. With the increased globalisation, the circulation of capital and commodities are no longer national, but international. Under present circumstances, economic development depends on relations to international finance and globally outsourced production and markets including commodity chains. The question arises how the rural sectors can make the transition to capitalism and also provide the resources needed for industrial development and what are possible obstacles. Henry Bernstein (1996) suggests that access to global capital may allow developing countries to generate surplus for industrial growth independently of the development of agriculture.

Unlike the past, it does not rely on inter linkages between domestic agriculture and industry. But the development of industries in the developing countries does not require capital transfer from the agriculture (Bernstein, 2006). In fact, economic liberalisation and globalisation has made the availability of wider sources of capital and also new international markets have developed for industrial products. Therefore, the classical theory of agrarian transition where development in agriculture and industries were interrelated is no longer relevant (Lerche et al, 2013).

The reasons for drastic decline in agricultural products, especially the cash crops, were due to the removal of import restrictions. For example, India reduced imports tariffs on tea and coffee from Malaysia and Sri Lanka.

As a result, the cultivation of such products became less profitable and their production declined sharply. This was also due to WTO pressure to remove restrictions. It seems that the crash in some agricultural product prices is largely due to trade liberalisation.

The "Open Door Policy" embodied in the WTO's new Trade Facilitation Agreement (TFA) the industrialised countries have backed TFA solutions. It heavily relies on global value chains as being vehicles for greater market access forindustrial and services products in the developing countries. The industrialised countries continue to provide export subsidies and credits to their farmers. Developing countries such as India does not provide large-scale subsidies to its farmers. India with massive population that are still dependent on agriculture could only provide minimal support i.e. 10% of a value of production of a particular crop.

At present, WTO and World Bank favours liberalisation in agriculture sector in the developing countries. It says that export promotions and better prices to farmers would lead to higher investment in agriculture sector. For example, farmers would allocate more water and land to the prawn farms rather than rice cultivation. Such shifts would have negative repercussions both for ecology and food security. The government intervention is required to defend the peasantry against the vicissitudes of the fluctuations of the world market, which could be crucial to maintain rural employment and well-being of both great majorities of both rural and urban inhabitants.

This meant that uncertainties related to international price movements became directly significant for Indian farmers as government did not provide any assistance to absorb this price volatility shocks. Under such circumstances Indian farmers were pushed to compete against highly subsidised large farmers in developed countries.For instance, in cotton such uncertainty has given misleading signals to farmers who responded by changing cropping pattern and did not prepare for sudden collapse of prices. It has also affected farmers producing soybeans and ground nuts due to palm oil imports. Government policy changes encouraged farmers to diversify crop production, but negative outcome had been the reduction of the production of food grains production (Patnaik, 2003;Vakulabharanam and Motiram, 2011).

Indian farmers were exposed to international price variations for a number of agricultural commodities. For example, cotton prices data for the last decade show high rates of fluctuations and such variations in prices had little to do with domestic production conditions and largely to do with international markets and prices. With the liberalisation, initially the market signals were sent that changing acreage will be profitable and farmers positively responded to it. As a result, in the mid-1990s a wide spread shift towards cotton cultivation took place, even in areas unsuitable for growing cotton. Farmers borrowed money often from creditors like money lenders, because of lack of availability of formal credits, coupled with growing inability to meet debt service payments, because of both vitality of crops and prices. The National Sample Survey data shows that the proportion of rural

households with no land increased rapidly. At the same time, due to shifts in cultivation towards non-food grain crops also meant sharp decline in per capita food absorption in rural India and output and availability of food grains have fallen since mid-1990s (Government of India, 2013).

The government polices of liberalisation led to the cut down of subsidies in public expenditure i.e. as fertilizer subsidies were reduced. At the same time changes on public services such as irrigation and electricity charges were raised. Most of the commercial crops declined since mid-1997. While at the same time commercial crops such as cotton and oil seeds prices in international markets plummeted during this period. This led to greater distress among the farmers. The collapse of international prices for several commodities meant that their prices in India also fell despite their decline in domestic production.

The problems seen with the adoption of 'green revolution' technologies, was in Punjab state with the extensive use of nitrogen fertilizer and pesticides led to increase the concentration of nitrates and pesticides residues in the water, food and animal feed above the tolerance limits. Therefore, many suggest that more diversified system is needed. Higher reliance on groundwater irrigation has led to over-pumping, falling groundwater tables in aquifers, with low recharge, and deteriorating ground water quality (WorldBank, 2004).

The official data shows disparity in the rate of growth of agricultural and non-agricultural sectors. The disparity in GDP growth was significantly in 1970s, but it was particularly marked after mid-1990s. During the period from 1999 to 2005, while the agricultural GDP had grown at 1.7% annually, the trend rate of growth of non-agricultural GDP exceeded 7% (Government of India, 2013).This does mark a structural shift in the pattern of growth when compared with the first three decades of post-independent development. During that period when the policy makers saw the agricultural bottleneck was an important factor, which could be responsible for the failure of strategy of 'Import Substitution Model' of development. The argument was given that transformation of underdeveloped economies such as India could not be possible successfully through trade and the institutionally determined reforms could achieve higher rates of growth, by keeping inflation in check (Kalecki, 1972; Chakravarty, 2001). Mitra (1977) attributed the slowing down of industrial growth in 1965-1976 to a relative fall in the demand for manufacturing goods consequent upon the shift in the terms of trade in favour of agriculture leading to a fall in the profitability in the private corporate sector (Mitra, 1977).

The rural unemployment remains very high, despite the two decades of high GDP growth rates failed to translate into increasing rural employment, while at the same time the high rates of inflation into increase in prices of basic necessities are eroding the already low incomes in the rural areas. The government seems to subscribe to "trickle down" theory, which claims if the rich get richer then demand of goods and services will rise and ultimately the poor will benefit with such development (Rao & Strom, 2003; (Dev, 2008).

The problem is that if agriculture policies are formulated on the principle of 'free market' then it will have deep social and economic implications in the country. It is primarily due to firstly, in industry, production is continuous process, but agriculture output takes place not on continuous basis and its output could not be adjusted to demand conditions. Secondly, agriculture scale of operations takes place on much smaller basis e.g. a country like India agriculture operations are dominated by small and medium farms than industry. Thirdly, farmers to hold stocks after harvests are also very limited, meaning agriculture supply cannot be increased rapidly. Fourthly, agriculture output fluctuates due to weather and other natural factors. Fifthly, demand for agricultural commodities tends to be price-inelastic. In short, in the presence of all factors, agriculture sector requires government intervention in the markets.

The fluctuations in agriculture prices would affect urban and rural workers, who may face malnutrition and starvation due to rapid increase in food prices. Therefore, leaving the agriculture on the mercy of market forces will lead to dire and unknown consequences such as food consumption, food security and employment, because still in developing economies like India, agriculture sector provides jobs to the large proportion of the people in India (Dev, 2008).

5. Capital Formation in Agriculture Sector

Gross capital formation in agriculture (GCFA) rose at nearly 3% annually from 1961-1999, a significant rate of growth for a developing economy. However, we decomposed by decades, the rate of capital formation shows much difference. Between 1960 and 1969, the growth rate of GCFA was average 5.1% annually, but it rose to 8.7% annually during the period of 1970-80. The capital formation was down to 1.8% annually in the 1990-1999. Many observers have explained it was largely due to deceleration in the public sector expenditure (Shetty, 2006; Storm, 1995; Sen, 2003).

The question arises how this growth in capital accumulation in agriculture compares to the other sector of the economy. To answer this question we must look at the GCFA in the Indian economy. Agriculture sector's share in GCFA was stable of around 15% until 1980s. Since then agriculture share has declined as a share of the total capital formation in the economy from 18% in mid-1980s to merely 6% in 2000 (Gulati & Bathla,2002). It clearly indicates that there was significant capital accumulation in the pre-reform period compared to post-reform period (Patnaik, 1984). Capital formation in agricultural sector kept pace with the capital formation with the non-agricultural sector. It seems that public sector policy does have positive effect on agricultural sector in India. If the rural economy stagnate would mean the large proportion of Indian population will be experiencing poverty and misery.

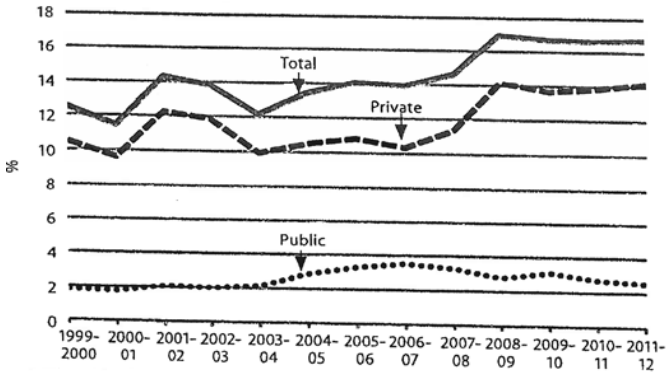

Figure 2. *Agricultural Gross Capital Formation as a Percentage of GDP–Public, Private and Total*

Source: Central Statistical Organisation (CSO), Natioanl Account Statistics, Various Issues, Government of India.

As shown in Figure 2, the agriculturalcapital formation as a Percentage of GDP declined from 2.2% in 1998 to 1.7% in 2005 (Vaidyanathan, 2006). Public investment in agriculture has declined since 2006. However, partially private investment rose. As Figure 2 shows that the total agricultural gross capital formation as a Percentage of GDP has stagnated since 2007, and continued to stagnate from 2008 onwards. It seems, decline in the public sector capital formation has adversely impacted not only on total capital formation but affected the private capital formation as well. In recent years it has picked up, but still lower compared to 1990 levels. One of the main contributors to the growth was expansion of irrigation to various regions. But the growth in irrigation had been slower in recent decades.

The capital formation in agriculture has stagnated in real terms due to decline in public investment, while not compensated by an increase in private investment. It is a fallacy that public investment 'crowds-out' private investment. Contrary to it, public investment in irrigation played key role in India and made investment in private tube wells and pump sets more profitable. The public irrigation played very positive role, not just by making easily access to water to farmers, but also maintained water table high owning to seepage to canal irrigation system. Rather than discouraging, public investment attract more investment by private sector and becomes more critical as private investment of ground water is reaching at crisis points in various regions due to falling water table and even large farmers find difficulties in investing heavily in deep bore wells and pumps which is definitely costing them more and more (Tyagi, 1990).

6. Farmers Mounting Debts

The demand for institutional credits has grown at affordable interest rates, but it has not kept pace with the growing demands of medium and small farmers, who have increased their sown area of non-food crops. We also find at the same time these sections are increasingly getting their demands met by informal sources of credits also known as money lenders.

Indebtedness among the small cultivators rose from 20% in 1991 to 35% in 2002 (NSS All India Debt Surveys).Various forms of collateral have been noted in recent years from land to crops interlinking of credits and product markets. This simply means farmers, who have borrowed money against the promised to sell their crops to money lenders cum traders (NSS, 2003; Gulati & Bathla, 2002).

The post-reform period also witnessed increasing agriculture distress most clearly demonstrated by 250, 000 farmer's suicide between 1997 and 2012 (Siddiqui, 2014, Government of India, 2010). Various studies have found that cotton farmers are committing suicide largely due to indebtedness, failure of crops and fall in market prices (Vaidyanathan, 2006). Amit Bhaduri (1984) has pointed out that the informal credits in rural India invariably come with other demands and pressures, i.e. the interlocking of credit with the product market. It could be that the informal credit market is invariably tied to the product market. Farmers under debts have not only to compulsively produce for the market but also have to sell their produce to whom they indebted (Vaidyanathan, 2006).

Indebtedness of farmers and higher risks appear to be the main factors responsible for dramatic rise in number of suicide cases in the 2000s. Of course, other factors contributed to it such as decline in productivity, price uncertainty due to trade liberalisation and the decline in the availability of formal credits. As most of the studies found farmer's indebtedness as the main reason for dramatic rise in suicides, especially for the last decade. Suicide of farmers' has sharply increased due to slowdown in growth rates and deepening crisis in the agriculture sector. It appears that the decline in agricultural income, farmer's life became desperate and suicide was seen the only way out. Farmers shifting to commercial crops, as it require higher use of capital intensive inputs than subsistence crops. Government failure to invest in dry land, meaning cultivation is done on marginal lands and it increases the risks further (Gulati & Bathla, 2002).

It is clearly noticed that the farmers' suicides are concentrated in low rainfall regions in regions like Andhra Pradesh, Karnataka, Maharashtra and Punjab. Suicide afflicted households had borrowed mostly for digging and deepening wells and for cultivation of capital intensive high value crops such as Bt cotton and spices and expected to pay higher export prices. Failure to meet these expectations seems to be the key reasons behind their inability repay their debts. Various studies have pointed out that due to relatively low rain fall in these areas; meant groundwater became quite important source of irrigation for the farmers. However, the rapid rise in the number of tube wells and pumps in these areas also led to a fall in the water levels. As a result, affected water supply and the costs had gone up too. At the same time, Bt seeds prices went up, but cash crops' prices actually declined, leading to a real loss of incomes of the farmers. This unfavourable price trends for these cash crops are largely due to the liberalisation of imports of agricultural products. At the same time cotton imports have gone up in the last decade, whose prices in the international market have been falling steadily. All these

unfavourable trends have affected the Indian farmers adversely (Vaidyanathan, 2006).

Therefore, dramatic rise in the suicides by small and marginal farmers in different parts of India over the last two decades has deepened the crisis in Indian agriculture. It has happened in agriculturally developed states such Andhra Pradesh, Karnataka, Maharashtra and Punjab. It has brought increased discussions among academics and policy makers about the causes that such a phenomenon may have with wider processes of change at the national levels. Though they differ in their findings, but most of academics have tended to attribute this crisis to the neoliberal reforms that has increased the burden on the poor farmers in particular and agriculture in general (Patnaik, 2003; Ahlawat, 2003).

7. Concluding Remarks

The study finds that the Indian agriculture is overburdened in the sense that a very high proportion of people are dependent on this sector, while it has low productivity and low capital investment. Therefore, public investment is important and it had played a positive role in the past. The public investment in land and water management seems to be crucial for improving the agriculture sector in the long term growth and viability in India.It should also be increased in dry land, particularly towards development of technology suitable in such regions.During the pre-reform period, the crucial point was that the government support to 'green revolution' in various ways e.g. by extending infrastructure support and increased availability of credits and subsidies to the farmers. However, in the post-reform period, the government spending had been reduced drastically. The post-reform crisis seems to be not only in terms of declining growth rates in the agriculture sector compared to the pre-reform period, declining per capita food availability, stagnating investment but also in terms of slowing down in productivity and yield. Thus, reducing rural poverty and food sovereignty via agricultural development should be a major concern but seems to have been side lined due to economic liberalisation.

It was claimed that pro-market reforms would lead to a fall in the share of population dependent on agriculture and rise in the share drawing their income from manufacturing and services. India supposed to follow the same route, but it seems not logical in Indian case with the existence of huge labour reserves can resolve its rural unemployment without active public measures and to follow labour intensive growth strategies, which are the mainstream economists and policy makers' prescriptions.

Accepting trade liberalisation means exposing domestic farmers to very volatile international agricultural commodity prices.Integration of Indian agriculture with the world markets would lead to price volatility. It would also mean increased price fluctuations for both consumers and producers. It seems that the recent the WTO agreement could bring difficulties for India. This includes end of subsidies and curtailment of state involvement in rural

sector, meaning it would be difficult to promote rural industries and also import liberalisation in agriculture is threatening the viability and livelihoods of small farmers whose products face competition from cheaper imported goods. These developmentsraise serious issues regarding whether India can pursue an independent sovereign development strategies such as industrialisation, technology upgrading and development of rural industries and food security.

In order to achieve sustainable development of the economy, the agriculture sector should play the crucial role (Storm, 1995; Kaldor, 1967). The long term growth strategy must not ignore agriculture sector. There is doubt about the feasibility of an export-led growth for a country like India. Overall growth could be achieved by a substantial increase in public investment in areas such as irrigation, power, rural infrastructure and availability of formal credits to farmers. It would lead to an increase in agricultural productivity and rise in farmers' income and as a result in the expansion of demand for industrial goods.

The market structure re-enforces the differences in sectoral adjustments patterns. For instance, market structure in industry is oligopolistic with industrial prices could be fixed by the producers by adding a mark-up to variable costs. However, unlike industry, in agriculture the farmers had limited market power. In India due to government procurement prices, if the market prices threaten to fall below to certain level, then the government will intervene to keep prices at certain level. Chakravarty (1979) suggested that "there are important departures from the assumption of prefect competition in the product markets, including even agriculture after price support operations were accepted as a part of the rules of the game since the late 1960s" (Chakravarty, 1979:1237).

For successful inclusive growth and development, agricultural growth is a pre-requisite. It is important to implement land reforms, improve institutional credits and increase investment in rural infrastructure, to assist small and marginal farmers and also to diversify the rural economy. Until a level playing field is created across the world, otherwise trade liberalisation in agriculture will simply prop-up developed countries farmers at the expense of farmers in the developing countries like India.

Food is a crucial commodity for which a large populated country like India cannot afford to rely on import-dependent and from the past experience during the colonial period we know that non-availability of food means famines and also it will push up world food prices. Therefore, food security is a serious issue in a large populated country such as India. The annual per capita food grain availability was around 200 kg. in 1901, but by 1943 it has declined to 136.8 kg. The fall in the availability of foodgrains due to land under food grains crops was diverted for commercial crops and also at the same time neither gross cropped area nor yield of the food crops were increased. As a consequence, the fall in availability of food grains, along with colonial governments' non-intervention policy contributed towards the Bengal Famine of 1943 in India, which claimed 4 million lives.

References

Ahlawat, S. R. (2003). Sociology of agrarian crises: Peasant suicide and emerging challenges. *Man and Development*, 25(3), 97–110.

Bagchi, A. K. (1982). *The political economy of underdevelopment*. Cambridge University Press.

Bernstein, H. (2006). Is there an agrarian question in the 21st century? *Canadian Journal of Development Studies*, 27(4), 449–460. https://doi.org/10.1080/02255189.2006.9669166

Bernstein, H. (1996). Agrarian questions then and now. *Journal of Peasant Studies*, 24(1), 22–59.

Bhaduri, A. (1984). *The economic structure of backward agriculture*. Macmillan.

Brown, M. B. (1993). *Fair trade*. Zed Books.

Chakravarty, S. (2001). Reflections on the growth process in the Indian economy. In *Selected writings* (pp. 35-45). Oxford University Press.

Chakravarty, S. (1979). On the question of home market and prospects for Indian growth. *Economic and Political Weekly*, 14(August), 25-35.

Chandra, B. (Ed.). (1990). *Ranade's economic writings*.

Chavan, P. (2007). Access to bank credit: Implications for rural Dalit households. *Economic and Political Weekly*, 42(31), 3219–3223.

Dev, M. (2008). *Inclusive growth in India: Agriculture, poverty and human development*. Oxford University Press.

Dutt, R. C. (2001). *The economic history of India under early British rule*. Routledge.

Ghosh, J. (2010). The political economy of hunger in 21st century. *Economic and Political Weekly*, 14(44), 33–38.

Girdner, E. J., & Siddiqui, K. (2008). Neoliberal globalization, poverty creation and environmental degradation in developing countries. *International Journal of Environment and Development*, 5(1), 1–27.

Government of India. (2013). *Agriculture statistics at a glance*. Ministry of Agriculture.

Government of India. (Various years). *Economic survey*. Ministry of Finance. Retrieved from http://www.indiastats.com

Government of India. (2006–07). *Agricultural statistics at a glance*. Ministry of Agriculture.

Government of Punjab. (2004). Retrieved from http://www.punjabgovt.nic.in

Gulati, A., & Bathla, S. (2002). Institutional credits to Indian agriculture: Default and policy options. *Occasional Paper 23*. National Bank for Agricultural and Rural Development.

Harriss-White, B., & Janakarajan, S. (2004). *Rural India facing the 21st century: Essays on long term village change and recent development policy*. Anthem South Asian Studies.

Herring, R. J. (1983). *Land to the tiller: The political economy of agrarian reforms in South Asia*. Yale University Press.

Kaldor, N. (1967). *Strategic factors in economic development*. Cornell University.

Kalecki, M. (1972). Problems of financing economic development in a mixed economy. In *Selected essays on the growth of the socialist and the mixed economy* (pp. 145–161). Cambridge University Press.

Kay, C. (2009). Development strategies and rural development: Exploring synergies, eradicating poverty. *Journal of Peasant Studies*, 36(1), 103–137. https://doi.org/10.1080/03066150902820339

Kindleberger, C. P. (1987). *The world in depression 1929–39*. Pelican Books.

Lerche, J., Shah, A., & Harriss-White, B. (2013). Introduction: Agrarian questions and left politics in India. *Journal of Agrarian Change*, 13(3), 337–350. https://doi.org/10.1111/joac.12031

Mishra, P. (2013). Agriculture vs non-agriculture. *Economic and Political Weekly*, 48(15), April 13.

Mitra, A. (1977). *Terms of trade and class relations: An essay in political economy*. Frank Cass.

National Sample Survey. (2003). *Situation assessment survey of farmers: Indebtedness of farmer households*, 59th Round, Report No. 498 (59/33/1). Government of India.

Nayyar, D. (2006). Economic growth in independent India: Lumbering elephant or running tiger? *Economic and Political Weekly*, April 15.

Patnaik, U. (2003). Global capitalism, deflation and agrarian crisis in developing countries. *Journal of Agrarian Change*, 3(1–2), 33–66.

Patnaik, U. (1997). India's agricultural development in the light of historical experience. In T. Byres (Ed.), *The state development planning and liberalisation in India*. Oxford University Press.

Patnaik, P. (1984). A synoptic view of underdevelopment: Review of the political economy of underdevelopment. *Economic and Political Weekly*, 19(28), July 14.

Rao, J. M., & Storm, S. (2003). Agriculture liberalisation in developing countries: Rules, rationale and results. In C. P. Chandrasekhar & J. Ghosh (Eds.), *Work and well-being in the age of finance*. Tulika Publication.

Shetty, S. L. (2006). Policy responses to the failure of former banking institution to expand credit delivery for agricultural and non-farm informal sectors. *ICRIER*, November.

Sen, A. (2003). Globalisation, growth and inequality in South Asia: Evidence from rural India. In C. P. Chandrasekhar & J. Ghosh (Eds.), *Work and well-being in the age of finance*. Tulika Publication.

Storm, S. (1995). On the role of agriculture in India's longer term development strategy. *Cambridge Journal of Economics*, 19(6), 761–788.

Thorner, D., & Thorner, A. (1962). *Land and labour in India*. Asia Publishing House.

Tyagi, D. S. (1990). *Managing India's food economy: Problems and alternatives*. Sage Publications.

Vaidyanathan, A. (2006). Farmers' suicides and the agrarian crisis. *Economic and Political Weekly*, 41(38), 4009–4013.

Vakulabharanam, V., & Motiram, S. (2011). Political economy of agrarian distress in India since the 1990s. In S. Ruparelia, S. Reddy, & S. Corbridge (Eds.), *Understanding India's new political economy*. Routledge.

World Bank. (2006). India: Inclusive growth and service delivery: Building on India's success. Development Policy Review. Retrieved from https://documents.worldbank.org/en/publication/documents-reports/documentdetail/357021468751066806/india-inclusive-growth-and-service-delivery-building-on-indias-success

World Bank. (2007). World development report 2008: Agriculture for development. Oxford University Press. https://doi.org/10.1596/978-0-8213-6807-7

Author statements
Acknowledgements: Not applicable.
Author contributions: The contribution of the authors is equal.
Funding: No funding was received for this study.
Availability of data and materials: Not applicable.
Ethics declarations
Ethics approval and consent to participate: Not applicable.
Consent for publication: Not applicable.
Consent to participate: Not applicable.
Competing interests: The authors declare that they have no competing interests.
Informed consent: Not applicable.
Consent for publication: All authors agreed with the content and gave explicit consent to submit the manuscript to *Journal of Agriculture, Food and Sustainable Development*
Data Availability Statement: Not applicable.