

# Mises's dynamics of interventionism: Lessons from Indian agriculture

Shruti Rajagopalan

Mercatus Center, George Mason University, Arlington, Virginia, USA

## Correspondence

Shruti Rajagopalan, Mercatus Center, George Mason University, Arlington, VA, USA.

Email: [srajagopalan@mercatus.gmu.edu](mailto:srajagopalan@mercatus.gmu.edu)

## Abstract

Despite trade liberalization, industrial delicensing, and deregulation in other sectors of the Indian economy since 1991, the agricultural sector is stifled by arbitrary, complex, and ever-increasing regulation in both input and product markets. This article resolves this puzzle of the Indian economy and, using Mises's theory of interventionism, explains the growth of regulation and subsidies in Indian agriculture. I argue that each intervention in agriculture created distortions in the market, necessitating the subsequent intervention in agricultural inputs and/or outputs. Land ceiling policies led to a large number of farmers with small and marginal landholdings. Attempts to increase agricultural productivity and income on small holdings led to interventions, and consequent distortions, in factor markets for seeds, fertilizer, electricity, water, credit, insurance, as well as in output markets in the form of minimum support prices. Indian agriculture policy serves as a cautionary tale of interventionism and needs systematic and comprehensive reforms.

## KEYWORDS

agricultural productivity, dynamics of intervention, India, interventionism, Mises, subsidy

## JEL CLASSIFICATION

B51, B53, P21, P26

## 1 | INTRODUCTION

It is puzzling that despite trade liberalization, industrial delicensing, and deregulation in other sectors of the Indian economy since 1991, Indian agriculture is shackled by “intrusive government regulations in both factor and product markets, an arbitrary policy and regulatory environment” (Chatterjee & Kapur, 2017). Mitra argues that the reason for low-agricultural productivity is because it is still the “most regulated, restricted, and prohibited sector of the economy” (Mitra, 2021). Solving this puzzle is important. While 44% of India's workforce is engaged in agriculture, they only contributed 16.5% of India's gross domestic product (GDP) in 2019 (Gulati & Saini, 2021).

After decades of a planned economic system, India liberalized various sectors of the economy in the nineties. Consequently, liberalized, and deregulated sectors, especially consumer goods, telecommunications, civil aviation, and so forth, boomed. GDP per capita increased sevenfold, helping to lift more than 250 million Indians out of poverty (Rajagopalan, 2021). All socioeconomic groups prospered because of sustained economic growth. Between 2000–01 and 2018–19, India's GDP grew by 7.2% per annum, but agricultural GDP grew by only 3.2% per annum, below the target rate of 4% (Gulati & Saini, 2021). Though agricultural production has steadily increased over the decades, the agricultural yield (quantity of a crop produced per unit of land) for most crops, is lower than China, Brazil, and the United States. Over the decades, policy makers have focused on input subsidies, minimum support prices, price and quantity controls, credit support, and so forth. These input subsidies cost Indians 2.0–2.25% of GDP, but agricultural productivity continues to remain low and close to half the Indian workforce is trapped in poverty.

Even though India has liberalized other sectors of the economy, the agricultural sector has gone in the opposite direction. Why has the overwhelming state presence in agriculture grown? In contrast, other sectors have deregulated, allowed more rational allocation through price signals, and prospered. I apply Mises's dynamics of interventionism (1940 [1998]) to explain the growth and complexity of regulation in Indian agriculture. I argue that each state intervention caused distortions in the market that led to the next intervention to help cope with the unintended consequences of the previous distortions.

This article explains the stifling regulation in present-day India, especially in agricultural input markets, by tracing the longer arc of interventions starting with land policy in the 1960s. I argue that land ceiling regulations passed in various states, aimed to increase equitable distribution of landholdings, led to a series of intended and unintended consequences. As intended, the land ceiling policy led to smaller holdings and land fragmentation but an unintended consequence was decreased productivity. To address low productivity, policy makers intervened in the markets for factor inputs like high-yield seeds, which led to further interventions in the input markets of fertilizers, water, electricity, credit, and insurance. Consequently, Indian agriculture is a regulatory nightmare, easily captured by special interests.

Interventionism is distinct from both *laissez-faire* capitalism where the government acts as a night watchman, securing property rights, maintaining law and order, and enforcing contracts to ensure market order. It is also distinct from collectivism, where there is an almost complete elimination of private property and control over the price system.

The goal of interventionism is to mount controls and a regulatory infrastructure on the existing market to correct what are perceived as failures of the unfettered system. However, each government intervention into the market impacts the information and incentives of a wide variety of market participants, who often have goals other than and sometimes contrary to those of

policy makers. Because information is dispersed across the economy, often in the form of tacit knowledge (Hayek, 1945), policy makers cannot fully anticipate how the changed information and incentives of market participants will ripple through the market and create secondary consequences. This distortion, caused by policy intervention, hampers entrepreneurial efforts to discover and exploit profit opportunities or it redirects entrepreneurial efforts to less productive areas and consequences that policy makers may consider undesirable.

These unintended and undesirable consequences trigger a second round of interventions that also lead to new unforeseen, unintended, and undesirable consequences. This sets into motion a series of effects that create distorted outcomes, which prompt further interventions in the market process. Through a series of policy interventions, the political economy reaches a point that even the initial policy makers would have deemed undesirable (von Mises, 1940 [2011]; Kirzner, 1985; Ikeda, 1997, 2004; Pennington, 2004; Kurrild-Klitgaard, 2004; Coyne et al., 2010; Martin, 2011).

Mises argued that if at each point of the problem or error perceived in the market process, planners/state actors choose more intervention instead of resolving the distortion through the decentralized market process, the system will eventually reach a point where the market process can no longer function, because the price system will have become so distorted that it no longer effectively transmits information about relative scarcities or enables reasonable calculations of profit and loss. Once the sector/economy hits a major systemic crisis, government actors will have to decide to either reject interventionism and remove all interventions and controls to return to *laissez-faire* capitalism or pursue a more comprehensive collectivist approach.

This article applies Mises's theory of interventionism to explain why Indian agriculture is shackled by the well-intentioned growth of byzantine regulation, trapping farmers in a low-productivity sector.

In subsequent sections, I detail the land reforms and land ceiling policies and the consequent first order effects—decrease in landholding size and agricultural productivity. I trace the second order effects, that is, various government interventions to increase farm productivity and incomes by subsidizing inputs, such as fertilizer, credit, insurance, and so forth, and providing minimum procurement prices. I conclude by discussing the present state of agriculture, which is untenable for both regulatory and fiscal reasons. The only way out of this regulatory maze is broad-based reforms, the kind that Indian policy makers did in 1991 for the industrial and trade sectors.

## 2 | LAND CEILING POLICY IN INDIA

At the eve of independence in India, political and economic ideology among the elites, especially the constitution framers, was to form a parliamentary democracy and a socialist welfare state. India became a constitutional republic espousing a mixed economy, with the intention to gradually move toward more collectivization and a modern industrial economy, as inspired by the Fabian socialists (Rajagopalan, 2015).

By 1950, India's intentions to have an institutional scaffolding that could oversee and regulate a mixed economy was clear. Even as the Indian Constitution was being crafted carefully, another institution—Planning Commission—was created, with far less thought and debate. The adoption of Soviet-style planning was debated in the Provisional Parliament which created the Indian Planning Commission in March 1950 by a Resolution of the Government of India (see Rajagopalan, 2020) was neither a constitutional body nor statutory body.

India epitomized a mixed economy with Fabian goals and the tools of gradual interventions to ensure greater collectivism. It started with reserving key industries for the public sector, formulating the industrial licensing regime, continuing the legacy of price controls from World War II, and land reforms in agriculture already under way.

The Planning Commission, responsible for drafting five-year plans (FYP), was Prime Minister Jawaharlal Nehru's brainchild, and he was also its first chairman. The main goal was economic egalitarianism through scientific and industrial development and redistribution. Each plan was supposed to spell out the exact amount of the investments to be made by the public and private sectors and how that investment would be allocated across sectors. It also included targets to be achieved by various industries for the next five years.

India's first FYP expressly stated its objective, to "reduce disparities in wealth and income, eliminate exploitation, provide security for tenants and workers, and, finally, promise equality of status and opportunity to different sections of the rural population" (Planning Commission, 1951 p. 88). Toward this goal, Nehru specifically focused on expanding heavy industry, given planners' concern regarding the lack of economic activity in intermediate goods. But since a large part of the economy was agrarian and three-fourths of Indians lived in villages, land reform was also crucial. Therefore, the first FYP focused on agricultural output, and preparations were underway to give central importance to industry in the second FYP.

The first FYP tackled the problem of land reform with two objectives: first, increase agricultural production; and second, serve landless farmers' interests in land (Planning Commission, 1951, chapter 12). This involved breaking up large feudal estates for redistribution among landless peasants. The focus was on the abolition of the feudal or *zamindari* system, which meant imposing agrarian land ceilings and redistributing surplus landholdings. However, both these goals had to be achieved subject to the overall principle of economic and social egalitarianism. The second FYP prioritized heavy industry (Planning Commission, 1956).

The third FYP once again prioritized agriculture because the performance in the largest sector of the economy was well below the expectations and targets of the previous plans. "Experience in the first two plans, and especially in the second, has shown that the rate of growth in agricultural production is one of the main limiting factors in the progress of the Indian economy. Agricultural production has, therefore, to be increased to the largest extent feasible, and adequate resources have to be provided under the third plan for realizing the agricultural targets... Both in formulating and in implementing programs for the development of agriculture and the rural economy during the third plan, the guiding consideration is that whatever is physically practicable should be made financially possible, and the potential of each area should be developed to the utmost extent possible" (Planning Commission, 1961, chapter 4).

In the third FYP, India's land reform policy had two objectives. The first was to remove impediments arising from the agrarian structure inherited from the colonial government. The second was to "eliminate all elements of exploitation and social injustice within the agrarian system, to provide security for the tiller of soil and assure equality of status and opportunity to all sections of the rural population" (Ibid).

Reforms had four elements: (1) abolition of intermediaries (*zamindars*), which commenced in the late 1940s; (2) tenancy laws to increase tenure security for sitting tenants by registering them and often imposing restrictions on the amount of rent they had to pay or the scope for

new rental transactions in the 1950s; (3) ceiling laws that provided a basis for expropriating land held by any owner in excess of a state-specific ceiling, and subsequently transferring such expropriated land to poor farmers or landless agricultural workers; and (4) consolidating fragmented disparate landholdings. While the first of these is considered to have been highly successful, progress on the remainder was initially very slow. These interventions resulted in the transfer of rights to almost 10 million hectares of land.

In colonial India, many scholars, including B. R. Ambedkar (1918), detailed the productivity problems arising from small and fragmented landholdings in Indian agriculture. However, in post-colonial India, this view changed substantially. The prevailing view in the sixties was that there is an inverse relationship between farm size and productivity. This was first observed in Russia by Chayanov (1926) and later for India (by Sen, 1962; Srinivasan, 1972; Bardhan, 1973). This had important implications for land ceiling laws. The thinking was that if small farms are intrinsically more productive than larger farms, land redistribution would not only shift the distribution of wealth but also increase land productivity generally. This inverse relationship also confirmed the inverse relationship between productivity and plot size (Kimhi, 2006). This view has been debunked in recent years.

Due to the various mandates from the Union government outlined in the FYP, almost all states passed land ceiling and redistribution legislation. Most states in India impose limits on maximum allowed landholdings by an individual or a family. They also make provisions for redistributing surplus or excess of land past the allowed ceiling limit.

For instance, the states of West Bengal (2.5–9.8 hectares)<sup>1</sup> and Kerala (2.4–8.0 hectares)<sup>2</sup> have the lowest limits in the range provided by their land ceiling legislation while Rajasthan has the highest (7.28–70.8 hectares).<sup>3</sup> Ceiling limits are different for different types of land, family structures, and use of land. While some states like Assam,<sup>4</sup> Bihar,<sup>5</sup> Himachal Pradesh,<sup>6</sup> and Madhya Pradesh<sup>7</sup> have limits only for agricultural/irrigated/orchard land, others like Karnataka<sup>8</sup>

<sup>1</sup>The West Bengal Land Reforms Act, 1955, section 14 M.

<sup>2</sup>The Kerala Land Reforms Act, 1963, section 82.

<sup>3</sup>Under the Rajasthan Imposition of Ceiling on Agricultural Holding Act, 1973, ceiling limits range between 7.3 and 70.8 hectares, depending on the nature of irrigation modes applied/levels of fertility of the land.

<sup>4</sup>Under the Assam Fixation of Ceiling on Land Holdings Act, 1956, the ceiling limit is 6.68 hectares for agricultural land and 7.14 hectares for orchards.

<sup>5</sup>Under the Bihar Land Reforms (Fixation of Ceiling Area and Acquisition of Surplus Land) Act, 1961, ceiling limits range between 6.07 and 18.21 hectares, for six different types of land classified under the act based on the mode of irrigation.

<sup>6</sup>Under the Himachal Pradesh Ceiling on Land Holdings Act, 1972, ceiling limits range between 4.05 and 12.14 hectares for three different types of irrigated lands. These limits would apply to lands held by a family that consist of five members, that is, husband, wife, and up to three minor children. Where there are more than five members, for each additional member, the ceiling limit shall increase by one-fifth of the area limit such that the total area shall not exceed twice the limit per family. Therefore, at no point can a family hold more than 24.28 hectares of land. Where the land is a tea estate, and is in excess of the ceiling limits, exemption can be sought from the collector.

<sup>7</sup>Under the Madhya Pradesh Ceiling on Agriculture Holding Act, 1961, ceiling limits for land owned by a family of five and more range between 4.05 and 43.7 hectares.

<sup>8</sup>Under the Karnataka Land Reforms Act, 1961, ceiling limits are prescribed in units. The value of a unit is anywhere between 0.4 hectare of Class A land and 5.4 hectares of Class D land, as per the formula prescribed under Schedule I of the act. The ceiling limits range from 10 units of land for a family of five up to 20 units maximum for a family with more than five members, that is, limits range between 4.0 and 43.7 hectares. There are different limits prescribed for nonagricultural usage of land, which could go up to 50 units, that is, 109.2 hectares (when measured for Class D land).

and Tamil Nadu<sup>9</sup> have different limits for lands put to different nonagricultural uses. Kerala, Maharashtra,<sup>10</sup> Punjab,<sup>11</sup> and Uttar Pradesh<sup>12</sup> have limits for land used for agricultural purposes, but have exempted lands used for plantation, nonagricultural, or industrial purposes from ceiling limits. Andhra Pradesh,<sup>13</sup> Gujarat,<sup>14</sup> Haryana,<sup>15</sup> Orissa,<sup>16</sup> and Telangana<sup>17</sup> have varying limits for lands irrigated in different modes or bearing different levels of fertility or soil condition.

To protect such legislation from constitutional challenge, the statements of objects and reasons for most Indian land ceiling legislation either directly referenced or mentioned Article

<sup>9</sup>Under the Tamil Nadu Land Reforms (Fixation of Ceiling on Land) Act, 1961, ceiling limits for agricultural land held by a family of five and families of five and more range between 15 and 30 standard acres. The formula for standard acres varies based on the type of soil (wet or dry) and the district the land is located in. The limits, therefore, can range anywhere between 4.86 and 48.6 hectares. For lands used for nonagricultural purposes, the limits can range between 3.2 and 64.7 hectares. In case any industrial or commercial undertaking desires to acquire land or already holds land in excess of the ceiling area, it has to secure the permission of the government to do so.

<sup>10</sup>Prior to an amendment in 2019, under the Maharashtra Agricultural Lands (Ceiling on Holdings) Act, 1961, ceiling limits ranged between 7.28 and 21.85 hectares for different types of land. Post the 2019 amendment, the limit of 21.85 hectares, which was applicable to dry crop land, was abolished. Where a family unit consists of members that exceed five in number, the family unit shall be entitled to hold land exceeding the ceiling area to the extent of one-fifth of the ceiling area for each member in excess of five, so however that the total holding shall not exceed twice the ceiling area. These limits do not apply to land held or to be acquired by an industrial undertaking or a public trust or a firm or a company for a bona fide industrial or other nonagricultural use, including an integrated township project.

<sup>11</sup>Under the Punjab Land Reforms Act, 1972, ceiling limits range between 7 and 21.8 hectares. Where there are more than 5 members in a family, ceiling limit will be extended by one-fifth of the limit per additional member. This extension will be allowed for not more than three members. These limits, however, do not apply to land, acquired by a person for nonagricultural purposes such as housing, industrial, infrastructure projects, special economic zone (SEZ), tourism units (hotels and resorts), public utilities, warehousing, commercial, cultural, recreational, sports, religious, or institutional. If land is acquired for nonagricultural uses, permission for such change of land use must be sought from the collector.

<sup>12</sup>Under the U.P. Imposition of Ceiling on Land Holdings Act, 1960, the ceiling limit on land owned by a tenure holder with a family of less than five members is 7.3 hectares of irrigated land and the limit shall extend by 2 hectares of irrigated land or such additional land which together with the land held by him aggregates to 2 hectares, for each of his adult sons, subject to a maximum of 6 hectares. Where the family has more than five members, the ceiling limit is 7.3 hectares of irrigated land and the limit shall extend by 2 hectares of irrigated land or such additional land which together with the land held by him aggregates to 2 hectares, for each of his adult sons and such additional member, subject to a maximum of 6 hectares.

<sup>13</sup>Under the Andhra Pradesh Land Reforms (Ceiling on Agricultural Holdings) Act, 1973, ceiling limits range between 4.04 and 21.85 hectares for 11 different types of land classified under the act.

<sup>14</sup>Under the Gujarat Agriculture Lands Ceiling Act, 1972, land is classified into multiple categories based on mode of irrigation and the area the land is located in. Ceiling limits are assigned accordingly and range between 4.05 and 21.85 hectares.

<sup>15</sup>Under the Haryana Ceiling of Land Holdings Act, 1972, ceiling limits range between 7.25 and 21.8 hectares for three different types of lands. These limits would apply to lands held by a family that consist of five members, that is, husband, wife, and up to three minor children. Where there are more than five members, for each additional member, the ceiling limit shall increase by one-fifth of the area limit such that the total area shall not exceed twice the limit per family. Therefore, at no point can a family hold more 43.6 hectares of land.

<sup>16</sup>Under the Orissa, the ceiling limit is 10 standard acres, where a standard acre is equivalent to 1 acre of Class I land, 1 1/2 acres of Class II land, 3 acres of Class III land, or 4 1/2 acres of Class IV land. Therefore, limits range between 4.05 and 18.21 hectares for individuals. Where the person has a family consisting of more than five members, the ceiling area in respect of such person shall be 10 standard acres increased by 2 standard acres for each member in excess of five, so however, that the ceiling area shall not exceed 18 standard acres, that is, the maximum limit is 32.78 hectares.

<sup>17</sup>Under the Telangana Land Reforms (Ceiling on Agricultural Holdings) Act, 1973, ceiling limits range between 4.04 and 21.85 hectares for 11 different types of land classified under the act.



39 of the Constitution, which forms part of the Directive Principles of State Policy.<sup>18</sup> Article 39(b) explicitly directs states' policy to ensure that "that the ownership and control of the material resources of the community are so distributed as best to subserve the common good" and 39(c) requires "that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment." Land ceiling and redistribution policies and legislation derived their constitutional legitimacy from these clauses. Reducing the size of the holding was the stated goal of land redistribution and land ceiling statutes.

### 3 | FIRST ORDER EFFECTS OF LAND CEILING REFORMS

The intention of the land ceiling reforms was to reduce the size of landholdings with a larger number of landowners for a more equitable distribution. Since these statutes were passed in the sixties and seventies, the average size of the landholdings has consistently decreased, and the number of small and marginal landholdings have increased. This decline during the eighties and nineties was a result of subsequent generations inhering wealth from their families and splitting up their share of landholding.

Figure 1 shows the decline in the average size of landholding from 2.28 hectares in the 1970–71 Census to 1.08 in the 2015–16 Census.

This led to three other trends. First, since 1970, about 4.3 million hectares of land is no longer employed in agriculture, shrinking the overall share of land used for agriculture, while simultaneously seeing an increase in the number of landholdings. Second, the number of marginal holdings increased 2.7 times from 1970–71 to 2015–16; and the number of small holdings increased 1.5 times from 1970–71 to 2015–16 (Figure 2). These constitute 86% of operational holdings and constitute about half the land used for agriculture. Third, the number of medium and large holdings declined (Figure 3). These constitute 4.3% of operational landholdings.

During this period, the earlier studies showing an inverse relationship between farm size and productivity were also challenged and reversed. Deininger et al. (2018) find that the evidence for the inverse relationship between farm size and yields weakened significantly from 1982 to 2008 in India, and they attribute it to labor market imperfections. Desiere and Jolliffe

<sup>18</sup>Directive Principles of State Policy (DPSP) are provisions under Part IV of the Indian Constitution. These provisions, analogous to those in the Irish Constitution, are in the nature of guidelines or obligations for the state. As per article 37 of the Constitution, these provisions are not enforceable in the court of law but are "fundamental in the governance of the country," and it is the duty of the State to fulfill them when legislating. Broadly, these provisions require the Indian State to secure income equality, fair opportunity, free legal aid, bovine protection, upliftment of the marginalized, right to education, robust local governance, heritage and environment conservation, and improve public health. Notably, Article 39 (b) states that the ownership and control of the material resources of the community are distributed so as to subserve the common good while clause (c) states that the operation of the economic system should not result in the concentration of wealth and means of production to the common detriment. Land redistribution policies and laws of the State derive their legitimacy from these clauses.

The text of the Constitution is clear in establishing that these provisions are not justiciable and are distinct from fundamental rights provided under Part III of the Constitution. The Courts, led by the Supreme Court, have however developed a different course of interpretation. In its initial years, the Supreme Court strictly upheld the text of Article 37. Where laws infringed fundamental rights on the pretext of fulfilling DPSP, the apex court did not consider DPSP as interpretative guides for determining the legitimacy of laws. In some cases, the Court even struck down such laws. This changed overtime with the Court suggesting a harmonious interplay between fundamental rights and DPSP when reviewing laws, such that full effect is given to both. Hence, cases where laws banning cow slaughter or when rights of minorities to run their own educational institutions were challenged as violations of rights, the Court upheld these laws based on this harmonious construction, giving due regard to DPSP.

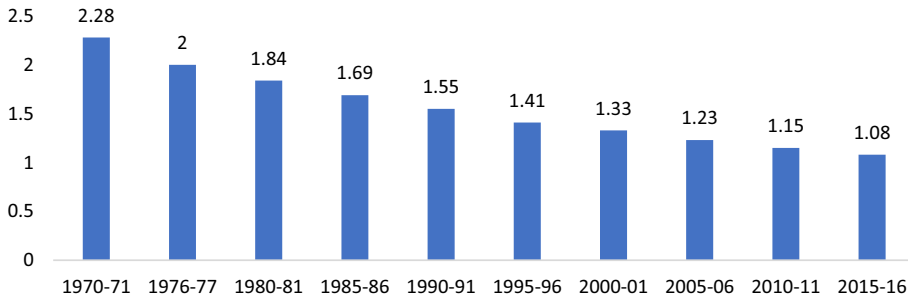


FIGURE 1 Average size of operational holdings (in hectares) in each agriculture census from 1970 to 2015.

Source: Agriculture Census 2015–16. (Government of India, 2016a) [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

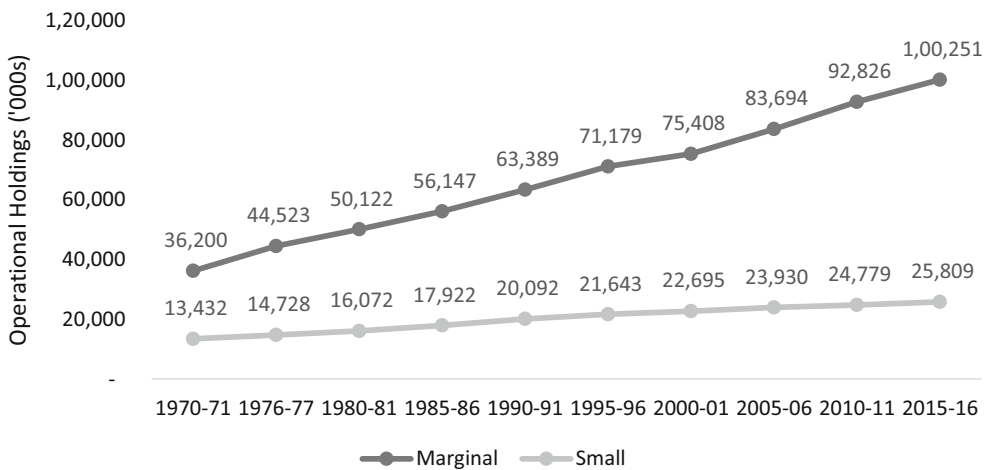


FIGURE 2 Number of marginal and small operational holdings as per different agriculture censuses.

Source: Agriculture Census 2015–16, (Government of India, 2016a)

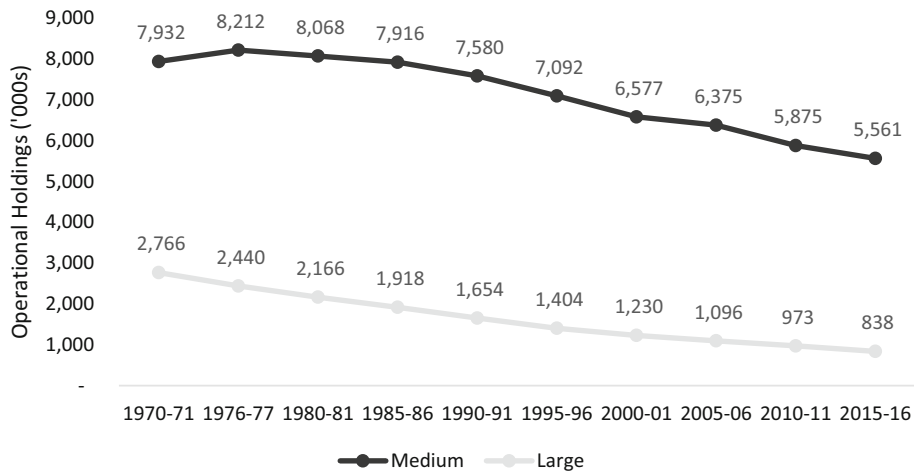


FIGURE 3 Number of medium and large operational holdings as per different agriculture censuses. Source: Agriculture Census 2015–16, (Government of India, 2016a)



(2018) argue that the main reason for the evidence in favor of the inverse relationship was measurement errors. They found that when crop cuts were used to measure yields, the inverse relationship between plot sizes and yields disappeared. In contrast, and consistent with previous studies, when they used self-reported yields, the relationship is strongly negative. They found that because of culture, policy, or other reasons, production is systematically overreported on small plots and underreported on larger ones.

Studies of the efficacy versus equity impact of land reforms show mixed results, depending on the specific aspect of land reform, states under consideration, and time period. Land reforms in India had four elements: (1) abolition of intermediaries; (2) tenancy laws to increase tenure security; (3) ceiling laws; and (4) consolidating fragmented disparate landholdings. Besley and Burgess (2000) found that their cumulative land reform variable (including the aspects of the policy beyond land ceiling) had a negative and significant effect on poverty due to tenancy reforms and abolition of intermediaries. Though Besley and Burgess did not discuss the impact of cumulative land reform on agricultural productivity, using the same data, Ghatak and Roy (2007) found it to be significantly negative.

Besley and Burgess find a negative impact of tenancy reform and a positive impact of land consolidation on agricultural productivity in India. Both these measures had a negative and significant effect on poverty. The other measures—namely, abolition of intermediaries and a ceiling on landholdings—did not have a significant effect on agricultural productivity.

Using an alternative yield measure, Ghatak and Roy (2007) find that the results of these individual components of land reform change rather significantly. Specifically, the impact of land ceiling laws on agricultural productivity was negative and significant. Their argument is that this is a consequence of the fragmentation of landholdings stemming from the land ceiling policy. Ghatak and Roy (2007) formulate it as an equity-efficiency trade-off, contrary to the earlier view where the inverse relationship between size and productivity meant that the same policy could achieve both efficiency and equity. Land reforms were never fully implemented in many states, but Sharma (1994) showed that even if land ceilings are fully implemented and all the surplus land is redistributed to the landless, such an exercise would lead to extremely small holdings and is likely to affect productivity adversely.

The biggest consequence of decreasing the size of landholdings, and the consequent decrease in agricultural productivity, is the decline in agricultural incomes per capita. Agricultural productivity has not kept up with population growth, and the number of agricultural workers or their families dependent on a single operational holding have increased over the decades. Ramaswami (2019) estimates that if marginal holdings were to earn the average of Rs. 42,644 per hectare per annum, the earned agricultural income is barely enough to be economically viable. The all-India rural Tendulkar poverty line for 2004–05 was Rs. 477 per capita per month. This meant that farm incomes for the average household with operational holdings less than 0.63 hectare would not be sufficient to keep these households out of poverty. In India, 68% of all holdings are marginal holdings, with the average marginal holding size of 0.38 hectares.

As agricultural productivity decreased, many farmers wished to exit agriculture and engage in other sectors of the economy. Typically, this event of exiting agriculture happened after a bad harvest caused by weather-related problems. In these circumstances, farmers were unlikely to get a good price for their agricultural land and usually sold the land in dire circumstances. To protect farmers from these adverse circumstances, virtually every state passed rules and amendments to their land legislation that prevents farmers from easily selling agricultural land (Swamy & Roy, 2022). The well-intentioned reason behind such legislation is that governments

were worried that businessmen would take advantage of a bad harvest and buy land from farmers at fire-sale prices. Consequently, only farmers and not-for-profit institutions (religious, education, and cooperatives) could buy farmland.

State governments also imposed income restrictions on buyers' nonagricultural income to prevent rich *zamindar* families with diverse income sources from exploiting poor farmers rendered helpless by financial difficulty. But the result was to drive out richer agricultural families from the agricultural land market to other opportunities. Most of the states have some version of these rules, though the income and size limits may differ. Over the years, various states have increased the relevant income limits. But barring rich households from a market trapped in low productivity depressed land prices.

The unintended outcome was a reduction in the number of potential buyers that depressed land prices. It also fragmented the land market, separating agricultural land from other land, as determined by regulation and not the land's productivity or market potential. As a result of these rules, the market for farmland is narrow and underfinanced. And land policy governing sales is complex, imposing high-transactions costs and corruption (Swamy & Roy, 2022).

Farmers can shift from agricultural land markets to the wider land market by obtaining permission to convert agricultural land to nonagricultural use. In rapidly urbanizing areas, the price after land-use conversion can be up to 30–40 times the price of the same land without conversion. Without a change of land use certificate, a seller must sell it to another farmer, making the market thinner. The benefits of land-use conversion in growing urban and industrial areas are so large that it has spun off an entire political economy of corruption and regulatory arbitrage. Farmers usually need to go through an endless line of middlemen to receive such a certificate or permission to change land use. Only a small proportion of farmers have been successful in converting their land to nonagricultural use. Most farmers remain trapped in low-productivity agriculture—a situation that has routinely caused large-scale protests and more interventionist responses from the government.

#### 4 | A SERIES OF NEVER-ENDING INTERVENTIONS—SECOND AND THIRD ORDER EFFECTS

As state governments pursued land redistribution, tenancy reforms, and methods of supporting small farms for a more equitable distribution of wealth, Indians were also struggling with food insecurity. In the sixties, India faced droughts and famines in multiple regions. And by the mid-sixties, it was dependent on various foreign governments for food aid.

Since the prevailing academic view was that small landholding sizes, especially owner operated, were more productive, and the political preference was to have a more equitable distribution of land by breaking up large estates, the problem of agricultural productivity had to be solved by other mechanisms. In this context, Indian scientists like M. S. Swaminathan, supported by Norman Borlaug, and the Rockefeller Foundation, advocated the use, in India, of high-yielding varieties of wheat, rice, and other grains that had been developed in Mexico and in the Philippines.

The problem with indigenous seeds was not that they were low-yielding; rather, it was their inability to withstand high use of chemicals and fertilizers. The new varieties were tested in conjunction with fertilizers and heavy irrigation to produce higher yields. Independently, the seeds and the fertilizers were not as effective, but used together with heavy irrigation, they promised to triple yields.

Farmers required some inducement to take on the costly investment and the risk of switching to the new high-yield seeds. For this, minimum support prices were introduced in output/produce markets. One important consequence of boosting productivity through high-yielding seeds was that they worked better on larger farms that could afford canal irrigation and had better access to credit. The higher-yielding inputs were more expensive, and the expenditure had to be incurred at the time of sowing. In the absence of well-developed credit markets, small farmers could use these seeds only if they borrowed the funds, typically at very high rates of interest because agriculture was still weather dependent and uninsured.

To overcome this problem, the government policy, once again, went down a path of targeted interventions. Instead of pushing for public investment in public goods and quasi-public goods like irrigation and infrastructure, the Indian state adopted the farm subsidy model. In this model, the state subsidized each individual input like fertilizer, electricity, water, credit, insurance, etc. Simultaneously, to ensure that the price consumers paid for the produce remained low, minimum support prices were also introduced. Consequently, each of these markets is completely distorted by these interventions, which are themselves the consequence of the original intervention of land ceiling policy.

#### 4.1 | Fertilizer

In the 1950s, as chemical fertilizer manufacturing was in the process of being set up, the government had to manage fertilizer demand in a closed economy that could not import fertilizer. To regulate the sale, the price, and the quality of fertilizers, the government had declared fertilizers an Essential Commodity and promulgated a Fertilizer Control Order (FCO) in 1957. Fertilizer subsidies are allocated both for the manufacturers and the farmers.

However, the farmers' subsidy was part of the incentives introduced during the Green Revolution to induce farmers to use chemical fertilizers to accelerate food production and agricultural productivity to meet the demand that rose sharply in the mid-sixties (Government of India, *n.d.*). The goal of this subsidy was to encourage high-yield variety crops without burdening farmers with high input costs and to compensate them for the low output price to benefit consumers. To achieve these ends but also reduce reliance on imports in a closed economy, the government subsidized domestic fertilizer manufacturers. The subsidies for manufacturers were intended to compensate the difference between the actual costs of production and the controlled price of the fertilizers.

Controlling prices immediately distorted the fertilizer market. Different prices emerged for the direct subsidy, the manufacturer subsidy, and the black market. To curb price variation in the markets, the government intervened further and fixed prices for fertilizers irrespective of the location of the manufacturing plants.

A retention price scheme (RPS) was introduced in 1977 to reconcile the uniform sale price and varying costs of production across plants. The goal was to reduce the uncertainty of returns on investment and encourage fertilizer plants to increase capacity utilization and new firms. First nitrogenous fertilizers, then phosphatic and potassic, were subsidized under RPS. If a manufacturer's net realization from the sale of fertilizers at the government set price fell short of the retention price, the government paid the difference. The retention price is the price fixed by the government for each plant after considering the type of raw material being used, cost of other inputs, and maintenance under 80% capacity utilization, allowing the plant to earn 12% post-

tax return. This cost-plus scheme provided no incentive either to buy from the cheapest plant or to cut down operating costs, creating massive inefficiencies in fertilizer manufacturing.

After 70 amendments, the 1957 order was overhauled by the Fertilizer (inorganic, organic or mixed) (control) Order (1985). This 1985 order remains in effect, regulating the equitable distribution of fertilizers by fixing the maximum prices or rates at which any fertilizer may be sold by a dealer, manufacturer, importer, and so forth, and controlling the distribution of fertilizers.

The 1985 order also set out procedures and requirements for obtaining certificates of registration to carry on the business of selling fertilizers, or certificates of manufacture for businesses involved in the preparation of mixture of fertilizers, or special mixture of fertilizers, biofertilizers, or organic fertilizers; restrictions on the manufacture, import, sale, and distribution of fertilizers; prohibition on manufacture/import and sale of non-standard/spurious/adulterated fertilizers; the appointment of enforcement authorities, or appointment of fertilizer control laboratories and fertilizer analysts; certification fees; and the establishment of a central fertilizer committee, and so forth.

After several committees and bodies offered solutions to streamline the fertilizer sector and remove distortions and inefficiencies, some recommendations of a 1991 Joint Parliamentary Committee were accepted: phosphatic and potassic (DAP) fertilizers were excluded from RPS and decontrolled. Urea remained under RPS.

The two fertilizer subsidies are not just different in size but also in the pricing model through which the subsidy is delivered. Each unit of DAP receives a fixed rupee amount as subsidy that is directly paid to the manufacturer. But for these fertilizers, the final price is unregulated and is determined in the market.

The subsidy mechanism is more complicated for urea with multiple distortions and perverse incentives. The selling price of urea is statutorily fixed by the Government of India, and the difference between the delivered cost of fertilizers at the farm gate and the selling price payable by the farmer is given as subsidy to the fertilizer manufacturer/importer by the Government of India. The consequent rise in prices for decontrolled fertilizers pushed farmers to overuse urea, which created some problems for the nutrient balance in the soil. Further, low priced urea was also beneficial to nonagricultural industries.

RPS was replaced by a New Pricing Scheme in 2003 under which the government paid the difference between the cost of production and the indicative maximum retail prices. However, urea continued to be available at a government-controlled uniform sale price. Price distortions and black markets continued to thrive.

This product-based subsidy framework was replaced by a nutrient-based subsidy scheme in 2010. Manufacturers were allowed to sell at reasonable retail prices subject to subsidies they would receive based on the different macro/micronutrients present in the fertilizer. Delays in subsidy payments and increases in prices made the scheme untenable and affected production.

The highly subsidized low price also encouraged farmers and middlemen to illegally sell urea in bordering countries like Nepal and Bangladesh. The Economic Survey of 2015–16 (Government of India, 2016b) estimates such theft to be as high as 41% of the amount supplied. Because this is now a thriving market, there are new procedures on how farmers can avail the urea subsidy; this means at the time of the sowing and spraying season, farmers are not always able to purchase urea and may instead buy it on the black market. According to Ramaswami (2019), black-market prices are 61% higher than the maximum retail price. Therefore, the amount the government spends is far greater than the amount farmers receive as subsidy.

In 2015, the government notified a New Urea Policy, effective until 2019, to make indige-

burden on the government. It required manufacturers to produce at least 75% of urea as neem coated (Government of India, 2015). Nitrogen in urea is not assimilated by plants efficiently and leaks into the groundwater. Neem-coated urea, on the other hand, slows down the release of nitrogen. Plus, it cannot be used or diverted for nonagricultural purposes. While this may minimize some of the unintended effects of the New Pricing Scheme, overall, the fertilizer subsidy mechanism creates so many distortions going all the way to regulating inputs for fertilizer manufacturers, that the entire systemic requires an overhaul.

The expenditure on fertilizer subsidy is the single largest agricultural input subsidy supported by the Union government and in past years has amounted to between 0.3% and 0.7% of GDP. For the year 2017–18, it was estimated at Rs. 70,000 crores.<sup>19</sup> Of this, Rs. 50,000 crores are spent as subsidy on urea while the remainder is the subsidy on DAP.

## 4.2 | Electricity

The largest state-level subsidy given to boost farm incomes is free or highly subsidized electricity. Due to a weak and inefficient irrigation infrastructure, Indian farmers are very highly dependent on rainfall and groundwater. The way the government has sought to fix the problem is to make electricity cheap or free to shift farmers' dependency from the broken irrigation infrastructure.

The issue of developing irrigation infrastructure can be traced back to the green revolution era, when an irrigation plan was required, especially for smaller farms, to facilitate the push for higher yields. At first, the government focused on tapping into groundwater and developing affordable groundwater-pumping technologies. The most important part of this program was to provide subsidized or free electricity to farmers.

Increasingly, groundwater became the leading source of irrigation and has increased steadily since the 1970s along with the increase in rural electrification in India. In the 1970s, the share of agriculture in total electricity consumption was just over 5%; it has now increased to 20% of total electricity consumption. This has led to systematic extraction of groundwater for agriculture (Badiani et al., 2012), which has improved food security (Singh, 2000) and farm incomes (Briscoe & Malik, 2006).

With an increase in profits through high-yield seeds, farmers focused on securing a reliable source of water through subsidized electricity. Soon, election promises centered around more reliable and cheaper/free electricity (Dubash, 2007). Every state announced free or subsidized electricity to farmers. Eventually, the Electricity Act enacted in 2003 empowered state governments to subsidize electricity tariffs. In some states, like Andhra Pradesh, the electricity subsidy is linked with irrigation. In 2004, free electricity for 7–9 h per day was provided during stipulated times. To prevent leakages, feeders for agricultural use were separated from non-agricultural use (Regy et al., 2021) so that subsidized electricity is used only for irrigation pumping for deep tube wells, dugout wells, and other lift-irrigation purposes.

The number of electric pumps has consequently increased, and Indian farmers employ over 20 million electric pumps. In the process, India is also exporting most of its electricity and water by exporting its food grains, in effect taking away from its poorest to export to rich developed countries. In most developed countries, the share of agriculture use in overall electricity

<sup>19</sup>One crore is equal to 10 million.

consumption is 1%–2%. In India, it is close to 20% and costs state governments Rs 90,000–100,000 crores annually (Ramaswami, 2019).

One major consequence of such indiscriminate pumping of groundwater is that the water table in many parts of India has reached alarmingly low levels. Various states have passed penalties for overpumping groundwater, which is a direct consequence of free/subsidized electricity. The low and flat tariff structure of agricultural electricity supply is a plausible reason for excessive groundwater extraction, though it is probably not the only factor. Other reasons such as price support policies, which make water-intensive crops attractive, and practices that reduce the effectiveness of canal irrigation and other forms of surface irrigation may also be responsible.

Another consequence is the diversion of electricity from productive to unproductive sectors. These subsidies have contributed to intermittent, unpredictable, and low-quality electricity service (Lamb, 2006; Tongia, 2003). Industrial and commercial users cross-subsidize agricultural users, and despite paying higher charges, these sectors get unreliable and intermittent service. This has led to adverse selection, where paying customers arrange more costly private power generation and exit the state electricity distribution utility.

Yet another consequence of subsidized electricity is that it hurts electricity distribution companies (DISCOMS). Electricity supplied to agriculture is largely not metered, and this means that there is no easy or transparent way to estimate electricity usage by farmers. But this lack of metering also enables a lot of electricity theft, which is the biggest reason for the enormous losses faced by DISCOMS in India. On the other side, it also provides cover for DISCOMS to inflate electricity sales to agriculture to hide losses due to other inefficiencies including theft and politically motivated diversion of electricity.

What began as an agricultural subsidy to help farmers dealing with low-productivity agriculture has now become a problem of electricity companies running huge losses and drowning in debt. To address this problem, the government launched the Ujjwal DISCOM Assurance Yojana (UDAY) aimed to improve the financial health of the DISCOMS by incentivizing state governments to take over the debt of these companies and turning into a bailout of DISCOMS.

### 4.3 | Irrigation subsidy

Irrigation subsidies are the difference between the operating and maintenance costs of irrigation infrastructure, that is, the cost of supplying irrigated water paid by the states and irrigation charges recovered from farmers (from sale). India does not have a user fees model to rationally allocate water, and this leads to low revenue raised by irrigation departments. These departments in turn are unable to spend resources on operations and maintenance of irrigation facilities. Consequently, irrigation facilities are rationed, and problems of unpredictable supplies, poor maintenance of distribution networks, and a lack of transparency in water allocation mechanisms arise. This leads to increased reliance on groundwater and more use of electricity in agriculture, even in states that might have rich natural irrigation facilities.

These irrigation subsidy schemes vary by state in magnitude, reach, and fiscal burden. For instance, Maharashtra has subsidized irrigation works since the 1980s to provide subsidy and credit for the construction of wells on the lands of small farmers. To encourage high-yielding and hybrid crops, a subsidy of up to 80% of the cost of a well and the provision of credit to cover the remaining 20% with an outlay of Rs. 5 crores was proposed for this scheme for 1982–83 (Government of Maharashtra, 1983). The Pradhan Mantri Krishi Sinchayee Yojna, launched in



2015, is a centrally sponsored scheme that provides a subsidy to encourage micro-irrigation among farmers. It aims at relieving farmers of the initial irrigation investment burden. There is no uniform basis for determining water rates and there is considerable variation between states, but it is estimated at Rs 17,000–20,000 crores annually (Ramaswami, 2019).

#### 4.4 | Credit subsidies

The all-india rural credit survey committee, 1951–54, recognized the need for institutional credit for the growth and development of the agriculture sector, which is largely dependent on money lenders.

In 1963, the Reserve Bank of India (RBI) set up the Agricultural Refinance Corporation to function as a refinancing agency in providing medium-term and long-term agricultural credit to support investment credit needs for agricultural development. This was later renamed the Agriculture Refinance and Development Corporation (ARDC).

In the first two decades since independence, cooperatives dominated the agricultural credit market. The nationalization of banks in 1969 allowed the government to control bank operations, including increasing reach in rural areas. To boost rural development, the RBI had then prescribed a 1:3 ratio for opening of branches in urban and rural/semi-urban centers.

In 1976, the government passed the Regional Rural Bank Act to provide sufficient banking and credit facilities for agriculture and other rural sectors. In 1979, the B Sivaraman Committee was constituted to look into this question and it recommended setting up a new organization that provided direction and focus to credit-related issues linked with rural development (Reserve Bank of India, 1981). These regional rural banks were in poor financial health right from the start. In 1998 Narasimham Committee found they have low-earning capacity because of the original design for a targeted group, which has led to a large number and proportion of defaulters (Government of India, 1998). The costs of running these banks are also very high, especially because of state-mandated salary scales and administrative procedures. Moreover, the procedures do not serve the rural agricultural clientele well. As a result, the government passed a statute setting up the National Bank for Agriculture and Rural Development (NABARD) (NABARD, n.d.) in 1981. The RBI's agricultural credit functions and ARDC's refinance functions were transferred to NABARD.

For all these institutions, the mandate was to make agricultural credit available at lower rates, where the difference in rates would be subsidized. This facility ended in 1995, as part of the liberalization reforms initiated in 1991 (Hoda & Terway, 2015).

Regional rural banks have, as a group, consistently faced losses. NABARD reported that for the 2019–20 they incurred a net loss of Rs. 2206 crores, and 10.4% of their assets were nonperforming assets. This is a result of pressure from the government to have low and subsidized rates of credit, provide interest subvention, and to not recover from defaulters in years of agricultural distress. This contributes to the larger problem of nonperforming assets in the Indian banking system requiring the government to recapitalize or bail out banks.

#### 4.5 | Loan waivers

Credit subsidies are disbursed by the Government of India through the banking system, a majority of which is owned and run by the government itself. Farmers in good standing can

receive short-term credit at 4% (against the usual rate of 8%–9%). In addition, the central government also has a post-harvest credit scheme for small and marginal farmers of 2% for a period up to 6 months. In the Economic Survey (2017–18), the budget for these credit subsidies was listed at Rs. 20,339 crores (Government of India, 2018).

The two main consequences of this kind of credit subsidy are that it distorts the banking system and disproportionately burdens state-owned banks compared to privately owned banks, which do not have a similar requirement crowding their books. The bulk of the agricultural loans are now in the state-owned banking system, and when these loans default, they also have a lopsided effect on the banking sector. Second, there is a tendency for political actors to use state-owned banks to give an effective subsidy by forgiving the agricultural loans to millions of farmers at a time. Credit subsidies with interest subventions cost the government roughly Rs. 20,000 crores. However, credit subsidies pale in comparison to the ad hoc loan waiver decisions of state and Union governments, which have cost the taxpayer about Rs. 122,000 crores.

In 1990, the Union government first announced the Agriculture and Rural Debt Relief Scheme, its first nationwide farm loan waiver program. Its successor, the Agricultural Debt Waiver and Debt Relief Scheme, enacted in 2008, waived institutional debt for small farmers and offered a one-time settlement opportunity with 25% rebate to other farmers. This was done to provide relief to the persistent problem of farmers' indebtedness and alleviate the financial pressure faced by the farmers. The consequent social unrest and farmers' suicides on account of such indebtedness led the government to write off loans worth Rs. 52,516 crores (Government of India, 2009). This was done against the recommendations of the Radhakrishna Committee, which did not recommend debt waivers among its solutions for overcoming agricultural indebtedness (Reserve Bank of India, 2007). Since 2014, these loan waivers have proliferated. Between 2014 and 2019, 11 state governments announced similar loan waivers worth Rs. 249,260 crores (Reserve Bank of India, 2019).

Phadnis and Gupta (2018) document 18 instances of loan waivers coming from state and central governments in the period from 1987 to early 2018. They show that the only consistent predictor of loan waivers is the electoral cycle. They also show that of the eight loan waivers granted in the period 2014–18, the smallest waiver was 188% of the state agricultural budget while the highest waiver was 669% of the state agricultural budget.

These loan waivers eventually have three effects. First, they severely impact the balance sheet of the banks because until the loans are forgiven or often in anticipation that the loans will be forgiven, the loan defaults mount and increase the share of nonperforming assets or bad debt on the books of government-owned banks. Second, they crowd out lending for other, more productive sectors of the economy and raise the cost of borrowing for the healthier parts of the private sector. Third, they create perverse incentives for farmers to organize and collectivize and not repay their debts as a group, since that is the trigger for the political class to announce a loan waiver. So, the frequency of the loan waivers has caused a serious moral hazard problem.

These policies may undermine the formal rural credit structure for some years to come. Their electoral appeal stems, in part, because farmers and the rural population are deprived of public services of education and health. The dependence on private fee-paying institutions (for education and health) makes farming households even more vulnerable to the typically high risks of agricultural activity. But instead of increasing public investment in education and health, the government is diverting the funds for short-term appeasement, increasing moral hazards that can threaten the rural credit system.

## 4.6 | Crop insurance

In 1965, the Union government announced that it would legislate upon crop insurance and empower state governments that wanted to implement crop insurance. The draft bill and a model scheme were referred to the Dharm Narayan Committee, which negated the introduction of crop insurance because of the financial burden (Government of India, 2014). Thereafter, agricultural insurance in India was started in a limited and ad hoc way. Private insurance companies had served India in colonial times; with the first general insurance company established in 1850, insurance was left to the private sector in the 1950s. But most private general insurance companies served the needs of businesses and urban areas and did not focus on agriculture.

In 1972, parliament nationalized the general insurance business of 107 companies, which were amalgamated into 4 separate companies—National Insurance Company Ltd, Oriental Insurance Company Ltd, New India Assurance Company Ltd, and United India Insurance Company Ltd—under the holding company General Insurance Corporation of India (GIC). After nationalization, the GIC introduced a crop insurance scheme on H-4 cotton, groundnut, wheat, and potato, covering 2154 farmers. Another experimental scheme for cotton, covering 909 farmers, was operated during 1978–79 in Gujarat, Madhya Pradesh, and Maharashtra. These loss-making schemes led to the realization that schemes based on individuals were not practical on a national scale. In 1985, the Union government launched the first, nationwide Comprehensive Crop Insurance Scheme (CCIS) in 1985 with the objective of providing financial support to the farmers in the event of failure of crops as a result of natural calamities (drought, flood, etc.). It covered the shortfall in yield, because in addition to insuring weather-related risks, the goal was to encourage adoption of high-yielding seeds. To extend to small and marginal farmers, the premium rates were kept very low (2% of the sum insured for rice, wheat, and millet crops, and 1% for pulses and oilseeds). Even the low rate of premium was subsidized by 50% in the case of small and marginal farmers. This is in contrast to the rate of 5%–10% in the pilot crop insurance scheme, which was a loss-making scheme with a loss cost of 9.29%. In their evaluation of the scheme, Mosley and Krishnamurthy (1995) found that it was subject to insuperable moral hazard obstacles, and the scheme has made heavy financial losses. They argued that to work properly, the scheme would need to increase premiums and reduce the range of ranks covered by directly insuring individual farmers against drought rather than against a shortfall in yields. CCIS was replaced by the National Agricultural Insurance Scheme (NAIS) from 1999 to 2013, with some adjustments. But despite low premium rates and a high claim ratio, not enough farmers participated in the scheme. The scheme was administratively cumbersome and had a loss cost of 9.85%. Some of these administrative issues were streamlined in a modified NAIS. The insurance sector was liberalized in 2000, but the government continued to either directly insure or subsidize farmers. Under a pilot of the Modified National Agricultural Insurance Scheme (MNAIS), launched in 2011, to encourage more takers for insurance, subsidy for insurance premium was provided to the extent of 75% of the sum insured. In the pilot of the Weather Based Crop Insurance Scheme, subsidy was given to the extent of 50% of the sum insured. MNAIS brought down the loss cost to 8%. NAIS was merged with several of the above pilot schemes among others to form the National Crop Insurance Program in 2013 (Government of India, 2014). Lessons from these various schemes led to the creation of Pradhan Mantri Fasal Bima Yojana, which was made mandatory for all farmers seeking institutional credit. Crop insurances schemes require proper loss assessment and timely payment of claims, but the lack of transparency and long delays in compensation led to the failure of this scheme. Farmers did not want to deal with this and pressured the government to amend

the scheme to voluntary coverage. The administrative complexity and the lack of an implementation and dispute settlement infrastructure have led to small and marginal farmers, the intended beneficiaries, to opt out of this scheme. The problems with these schemes have led to inefficiencies in the insurance sector, with the government spending more than the farmers receive.

## 4.7 | Price support

To incentivize high-yield seeds in India, while looking out for the interests of the farmers, without passing on the costs to consumers, the Agricultural Prices Commission was set up in January 1965 to advise the government on price policy for agricultural commodities. (Government of India, 1965). Later, renamed as the Commission for Agricultural Costs and Prices, its mandate was to “recommend minimum support prices (MSPs) to incentivize the cultivators to adopt modern technology, and raise productivity and overall grain production in line with the emerging demand patterns in the country. Assurance of a remunerative and stable price environment is considered very important for increasing agricultural production and productivity since the marketplace for agricultural produce tends to be inherently unstable, which often inflict undue losses on the growers, even when they adopt the best available technology package and produce efficiently.”<sup>20</sup>

The MSP essentially sets a price (higher than market price, typically), and farmers make investment decisions based on that price. The original intention was to induce them to take on high-yield seeds, which initially meant risking crop failure or having very high yields/bumper crop. The MSP would ensure that farmers are not compelled to sell their produce below the support price due to a bumper harvest. In India, MSP works mainly for four crops: wheat, paddy, cotton, and sugarcane; and is strong in few states, with high variation across the country. MSP is strong with high adoption in Punjab and Haryana, but in states like Gujarat, Jharkhand, and so forth, where procurement policies are weak, few farmers rely on MSP.

Related to the support price is the procurement policy under the price support scheme where the state—through the Food Corporation of India, National Agricultural Cooperative Marketing Federation of India, Central Warehousing Corporation, Small Farmers' Agri-business Consortium, and so forth—procures produce from the farmers to ensure they get the minimum support price.

While MSP distorts the agricultural input/investment market, it has led to capture by the rich farmers in Punjab and Haryana, creating distortions in the produce market. Most notably, there has been a major shift away from the cultivation of pulses and toward wheat and paddy. The underproduction and consumption of pulses has contributed to malnutrition. Because of its minimum support and procurement policy, India farmers are incentivized to produce paddy and wheat and have surplus crop available for exports. Paddy requires a lot of water, and because of water and electricity subsidies to pump groundwater, as well as the MSP, Indian farmers overproduce paddy to the detriment of the environment. India's water exports rapidly increased around 1990, coinciding with sharp increases in the MSPs for paddy and wheat. Goswami and Nishad (2015) argue that India is a net exporter of water through export of agricultural products, which is irreversible, and this agricultural policy will lead to slow but

<sup>20</sup>Organization, Commission for Agricultural Costs and Prices, <http://cacp.dacnet.nic.in/content.aspx?pid=32>.

**TABLE 1** Agricultural subsidies given by the central and state governments

Type of subsidy	Amount (in crores)
Fertilizer–Central government	70,000
Credit–Central government	20,000
Crop insurance–Central government	6500
Price support–Central government	24,000
Power–State government	91,000
Irrigation–State government	17,500
Crop insurance–State government	6500
Loan waivers–State government	122,200
Total	237,200

Source: Ramaswami (2019).

irreversible loss of water sustainability. The effects are also not uniform; paddy is incentivized to grow in states that have the highest water insecurity and dropping groundwater tables.

#### 4.8 | Fiscal impact

India's agricultural subsidies, in total, cost the government about 2.0–2.25% of the GDP. Table 1 details the amounts and categories of farm subsidy by the central and state governments annually. In comparison, the government spent between 1.0% and 1.5% of GDP on healthcare before the pandemic and has the lowest healthcare capacity among BRIC countries (Choutagunta et al., 2021).

Farm subsidy expenditures amount to as much as 21% of average farm income. This means that subsidies cannot be withdrawn without considerable hardship to the farming community. And keeping the system of subsidies to compensate for low-agricultural productivity and low-farm incomes arising from small landholding size is preventing the structural transformation of the Indian economy. It keeps a large proportion of Indians in poverty by trapping their assets in low-productivity agriculture while simultaneously imposing a high-fiscal burden on Indian taxpayers.

## 5 | CONCLUSION

This article explains the puzzling feature of the ever-growing and stifling regulation in the agricultural sector in India, even as other areas of the economy were liberalized. The first set of interventions in agriculture were land reforms and land ceiling measures intended to reduce wealth inequality. They aligned with the then prevailing view of an inverse relationship between farm size and productivity, that is, smaller farms are more productive than larger farms. This lent a false sense of security to policy makers that there was no trade-off between efficiency and reducing land holding size to further equity goals. Consequently, the government met the intended goal and reduced the average landholding size and increased the number of operational small holdings. However, the unintended consequence was that agricultural

productivity and farm incomes declined. Smaller farms also had less access to irrigation. And in the sixties, Indians experienced droughts and famine and had to rely on foreign assistance for food grains.

It is now well established that the inverse relationship between the farm size/plot size and agricultural productivity popularized in the fifties and sixties stemmed from measurement errors, poor data, and market frictions, and does not hold. There is a trade-off between equity and efficiency in land ceiling policy. But in the 1960s and 1970s, under the then mistaken view, the policy of land ceiling and redistribution continued, and the consequent decline in land holding size, and therefore in productivity led to a series of additional interventions to address unintended consequences.

The first order effects of land ceiling policies were the decrease in the number of large farms/estates and increase in smaller and marginal farm holdings. To address low productivity and food insecurity, the government introduced and incentivized the use of high-yield seeds combined with chemical fertilizers through policies now known as the green revolution. The incentives were largely in the form of input farm subsidies.

The new high-yield seeds required fertilizer use and more irrigation to increase yields. Once again, this disadvantaged smaller farms, which had limited access to irrigation and limited access to formal credit markets to buy the more expensive inputs. And instead of rolling back and making public investments to support irrigation, transportation, credit, warehousing and trade, land titling, and dispute resolution, once again the policy makers chose to make a series of interventions supporting agricultural inputs.

The second order effects were large input subsidies for fertilizers, but these led to further price distortions in the fertilizer markets, leading to price controls and subsidizing inputs for the fertilizer industry. The third order effects are deterioration in soil quality, black markets and theft in fertilizer, and poor financial health of fertilizer companies.

Alongside the fertilizer intervention, to support irrigation in small farms, the government encouraged using electricity to pump groundwater, which in turn led to free/subsidized electricity. This led to an increase in pumps and wells tapping groundwater, and India's groundwater levels are now precariously low, exposing farmers to enormous climate risk. The subsidy also diverts electricity from more productive sectors of the economy toward agriculture, while imposing higher charges on industrial and commercial operations. Third order effects of the electricity driven irrigation policy are theft, the financial health of electricity distribution companies is dire, and these companies need the state to bail them out.

The second and third order effects of the agricultural credit subsidy and loan waivers follow a similar pattern. These distort incentives and create moral hazard problems, and banks thereby face high rates of default and increasing non-performing assets, placing the financial health of these institutions at high risk during economic downturns.

Minimum support prices have similarly distorted output markets and led to underproduction of pulses, overproduction of paddy, and unintentionally exporting scarce water to developed countries through agricultural produce.

As Mises's theory of intervention foretold, when at each point of the problem or error perceived in the market process, the policy makers choose more intervention, and the system eventually reached a point where the market process can no longer function, because the price system is so distorted that it no longer effectively transmits information about relative scarcities or enables reasonable calculations of profit and loss. Indian agriculture is at that point.

These interventions have made the agricultural sector inefficient, full of rent seeking and corruption, and the "most regulated, restricted, and prohibited sector of the economy"



(Mitra, 2021). Each distortion has led the government to add more regulation. None of the factor inputs—land, seeds, fertilizer, water, electricity, credit, insurance, and so forth—have a functioning market. And the efforts to fix each of these distortions in agricultural inputs have created distortions in the overall supply of fertilizers, electricity, water, credit, and so forth, in other sectors. As other sectors of the economy liberalized, agriculture became more regulated and complex.

Indian agriculture serves as a cautionary tale, highlighting the lessons from Mises's theory of growth in regulation and government. Like India's complex and highly distorted industrial policy was repealed in the 1991 reforms (Rajagopalan, 2021), the only way out of this cycle of interventions is comprehensive reforms and deregulation across all factor markets in agriculture. Indian agriculture, like Indian industry and trade policy in the nineties, requires comprehensive deregulation, land consolidation, and elimination of input subsidies.

## ACKNOWLEDGMENTS

Manuscript prepared for the Sessions on the 100th anniversary of “Economic Calculation” and the 75th anniversary of “Use of Knowledge,” at the *Southern Economic Association 2021 Conference*. I would like to thank the conference participants, editors, and reviewers for helpful comments and suggestions. I am indebted to Shreyas Narla for comments, suggestions, and research assistance and to Parv Tyagi for research assistance.

## REFERENCES

- Ambedkar, B.R. (1918) Small holdings in India and their remedies. *Journal of Indian Economic Society*, 1(1918), 1900–1945.
- Badiani, R., Jessoe, K.K. & Plant, S. (2012) Development and the environment: the implications of agricultural electricity subsidies in India. *The Journal of Environment & Development*, 21(2), 244–262.
- Bardhan, P.K. (1973) Size, productivity and returns to scale: an analysis of farm-level data in India agriculture. *Journal of Political Economy*, 81(6), 1370–1386.
- Besley, T. & Burgess, R. (2000) Land reform, poverty reduction, and growth: evidence from India. *The Quarterly Journal of Economics*, 115(2), 389–430.
- Briscoe, J. & Malik, R.P.S. (2006) *India's water economy: bracing for a turbulent future*. New Delhi: Oxford University Press.
- Coyne, C.J., Sobel, R.S. & Dove, J.A. (2010) The non-productive entrepreneurial process. *Review of Austrian Economics*, 23, 333–346.
- Chatterjee, S. & Kapur, D. (2017) Six puzzles in Indian agriculture. *India Policy Forum 2016*, 17, 13.
- Chayanov, A.V. (1926) In: Thorner, D., Kerblay, B. & Smith, R.E.F. (Eds.) *The theory of peasant economy*. Homewood, Illinois: Richard D. Irwin for the American Economic Association.
- Choutagunta, A., Manish, G.P. & Rajagopalan, S. (2021) Battling COVID-19 with dysfunctional federalism: lessons from India. *Southern Economic Journal*, 87(4), 1267–1299.
- Desiere, S. & Jolliffe, D. (2018) Land productivity and plot size: is measurement error driving the inverse relationship? *Journal of Development Economics*, 130(C), 84–98.
- Deininger, K., Jin, S., Liu, Y. & Singh, S.K. (2018) Can labor-market imperfections explain changes in the inverse farm size–productivity relationship? Longitudinal evidence from rural India. *Land Economics*, 94(2), 239–258.
- Dubash, N.K. (2007) The electricity-groundwater conundrum: case for a political solution to a political problem. *Economic and Political Weekly*, 42, 45–55.
- Ghatak, M. & Roy, S. (2007) Land reform and agricultural productivity in India: a review of the evidence. *Oxford Review of Economic Policy*, 23(2), 251–269.
- Goswami, P. & Nishad, S.N. (2015) Virtual water trade and time scales for loss of water sustainability: a comparative regional analysis. *Scientific Reports*, 5(1), 1–11.

- Government of India. (1965). Resolutions on the Terms of Reference of the Agricultural Prices Commission. New Delhi: Department of Agriculture, Ministry of Food & Agriculture.
- Government of India. (2009) Budget speech 2008–2009. New Delhi: Ministry of Finance. [https://www.indiabudget.gov.in/budget\\_archive/ub2008-09/bs/speecha.htm](https://www.indiabudget.gov.in/budget_archive/ub2008-09/bs/speecha.htm)
- Government of India. (2014) Report of the committee to review the implementation of crop insurance schemes in India. New Delhi: Department of Agriculture and Cooperation, Ministry of Agriculture. [https://agricoop.nic.in/sites/default/files/Rpt\\_pkm2.pdf](https://agricoop.nic.in/sites/default/files/Rpt_pkm2.pdf)
- Government of India. (2015) Approval to comprehensive new urea policy 2015. New Delhi: Press Information Bureau.
- Government of India. (2016a) Agricultural census 2015–16. New Delhi: Ministry of Agriculture.
- Government of India. (2016b) Economic survey of 2015–16. New Delhi: Ministry of Finance.
- Government of India. (2018) Economic survey of 2017–18. New Delhi: Ministry of Finance.
- Government of India. (n.d) Report on Rationalizing Fertilizer Subsidies. New Delhi: Department of Economic Affairs, Ministry of Finance.
- Government of Maharashtra. (1983) Annual Plan 1982–83. Mumbai.
- Government of India. (1998) Report of the committee on banking sector reforms. New Delhi.
- Gulati, A. & Saini, S. (2021) In: Gulati, A., Roy, R. & Saini, S. (Eds.) *Revitalizing Indian agriculture and boosting farmer incomes*. New Delhi: Springer Nature, p. 372.
- Hayek, F.A. (1945) The use of knowledge in society. *The American Economic Review*, 35(4), 519–530.
- Hoda, A. & Terway, P. (2015) Credit policy for agriculture in India—an evaluation. Indian Council for Research on International Economic Relations. ICRIER Working Paper 302. [https://icrier.org/pdf/Working\\_Paper\\_302.pdf](https://icrier.org/pdf/Working_Paper_302.pdf)
- Ikeda, S. (1997) *Dynamics of the mixed economy: toward a theory of interventionism*. London: Routledge.
- Kimhi, A. (2006) Plot size and maize productivity in Zambia: is there an inverse relationship? *Agricultural Economics*, 35(1), 1–9.
- Kirzner, I.M. (1985) *Discovery and the capitalist process*. Chicago: University of Chicago Press.
- Kurrild-Klitgaard, P. (2004) The political economy of the dynamic nature of government intervention: an introduction to potentials and problems. *Advances in Austrian Economics*, 8, 3–20.
- Lamb, P.M. (2006) The Indian electricity market: country study and investment context. PSED Working Paper Number 48, Stanford, CA.
- Martin, A. (2011) Rational choice without closure: the microfoundations of virtuous cycles and vicious circles. *Journal of Economic Methodology*, 18(4), 345–361.
- Mitra, B. (2021) An agenda for agricultural reforms. Ideas for India. <https://www.ideasforindia.in/topics/agriculture/an-agenda-for-agricultural-reforms.html>
- Mosley, P. & Krishnamurthy, R. (1995) Can crop insurance work? The case of India. *The Journal of Development Studies*, 31(3), 428–450.
- NABARD. (n.d) <https://www.nabard.org/content.aspx?id=2>.
- Pennington, M. (2004) The dynamics of interventionism: A case study of British land use regulation. In: Kurrild-Klitgaard, P. (Ed.) *The dynamics of intervention: Regulation and redistribution in the mixed economy*. Netherlands: Elsevier.
- Phadnis, A. & Gupta, A. (2018) *The politics of loan waivers: a comparative study*. Indore: Indian Institute of Management.
- Planning Commission. (1951) First five year plan. New Delhi.
- Planning Commission. (1956) Second five year plan. New Delhi.
- Planning Commission. (1961) Third five year plan. New Delhi.
- Rajagopalan, S. (2015) Incompatible institutions: socialism versus constitutionalism in India. *Constitutional Political Economy*, 26(3), 328–355.
- Rajagopalan, S. (2020) Ideas and origins of the planning commission in India. Planning in the 20th century and beyond: India's planning commission and the NITI Aayog, 61.
- Rajagopalan, S. (2021) The quest for economic freedom in India. *Capitalism & Society*, 15(1), 1–27.

- Ramaswami, B. (2019) *Agricultural subsidies. Study prepared for the fifteenth finance commission*. New Delhi: Indian Statistical Institute.
- Regy, P., Sarwal, R., Stranger, C., Fitzgerald, G., Ningthoujam, J., Gupta, A. et al. (2021) *Turning around the power distribution sector, learnings and best practices from reforms*. New Delhi: Niti Aayog. [https://www.niti.gov.in/sites/default/files/2021-08/Electricity-Distribution-Report\\_030821.pdf](https://www.niti.gov.in/sites/default/files/2021-08/Electricity-Distribution-Report_030821.pdf)
- Reserve Bank of India. (1981) Report of the committee to review arrangements for institutional credit for agriculture and rural development. Bombay.
- Reserve Bank of India. (2007) Internal working group to examine the recommendations of the Radhakrishna expert group on agricultural indebtedness. Mumbai. [https://rbi.org.in/Scripts/bs\\_viewcontent.aspx?Id=1270](https://rbi.org.in/Scripts/bs_viewcontent.aspx?Id=1270)
- Reserve Bank of India. (2019) Report of the internal working group to review agricultural credit. Mumbai. <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=942#CP11>
- Sen, A.K. (1962) An aspect of Indian agriculture. *The Economic Weekly*, 14(4–6), 243–246.
- Sharma, H.R. (1994) Distribution of landholdings in rural India, 1953–54 to 1981–82: implications for land reforms. *Economic and Political Weekly*, 29, A12–A25.
- Singh, R. (2000) Environmental consequences of agricultural development: a case study from the green revolution state of Haryana, India. *Agricultura, Ecosystems & Environment*, 82, 97–103.
- Srinivasan, T.N. (1972) Farm size and productivity: implications of choice under uncertainty. *The Indian Journal of Statistics*, 34(2), 409–420.
- Swamy, A.V. & Roy, T. (2022) *Law and the economy in a young democracy: India 1947 and beyond*. Chicago: University of Chicago Press.
- Tongia, R. (2003) The political economy of Indian power sector reforms. PSED working paper number 4, Stanford, CA.
- von Mises, L. (1940) *Interventionism: an economic analysis*. New York: Foundation for Economic Freedom.

**How to cite this article:** Rajagopalan, S. (2023). Mises's dynamics of interventionism: Lessons from Indian agriculture. *Southern Economic Journal*, 89(3), 657–679. <https://doi.org/10.1002/soej.12621>