Does the Price Signal Work? Minimum Support Prices, Area Reallocation and the Sources of Production Growth in Indian Agriculture, 1969-70 to 2025-26

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India supports pulses and oilseeds with the same instrument, the minimum support price, and imports both. Using the Reserve Bank of India Handbook of Statistics covering fifty-seven years, this article decomposes production growth into area and yield components and tests whether relative support prices reallocate area. Yield accounts for 89 per cent of foodgrains production growth over the full period, but the land frontier has not closed: area growth in the second half of the sample exceeds the first. The central finding is an asymmetry. The elasticity of the pulses area share to its relative support price is +0.368 ($p < .001$), while for oilseeds it is +0.061 and statistically indistinguishable from zero. Support prices reallocate area only where the border is closed, and India closed it for pulses but not for edible oils. A parallel reversal appears in yields: rice, wheat and cotton decelerate while coarse cereals and pulses accelerate.

Keywords: minimum support price, supply response, cropping pattern, oilseeds, pulses, Indian agriculture

JEL classification: Q11, Q18, Q17, O13

1. Introduction

India is the world's largest importer of edible oil and, until recently, was a large importer of pulses. Both crop groups receive a minimum support price (MSP), announced annually by the Commission for Agricultural Costs and Prices for the same crop year, and both compete for the same cultivated land. If the support price is an effective instrument of cropping-pattern policy, it should move area towards whichever crop it favours. This article asks whether it does, and finds that the answer differs sharply between two crop groups that the instrument treats identically.

The question matters because the policy debate on Indian agriculture is largely conducted in terms of the level of support prices. Committees recommend raising them, farm movements demand statutory guarantees for them, and fiscal analysts count their cost. Comparatively little attention is paid to whether the instrument actually reallocates land, and almost none to why its effect might vary across crops that are equally import-dependent. Yet the policy objective in both cases is the same, namely to reduce import dependence by raising domestic output.

A second question concerns where production growth comes from. The standard account of Indian agriculture holds that the land frontier closed decades ago and that all future growth must come from yield. That claim is repeated widely but rarely tested against the full published record. Because the Reserve Bank of India publishes area, production and yield as three separate tables for both foodgrains and commercial crops, the decomposition can be performed directly rather than inferred.

This article uses the Reserve Bank of India Handbook of Statistics on the Indian Economy 2025-26, covering index numbers of area, production and yield, the levels of production, area and yield for foodgrains and for major commercial crops, and minimum support prices for foodgrains and non-foodgrains. The combined record runs from 1969-70 to 2025-26 for the quantity series and from 1993-94 for support prices.

Three findings follow. First, yield accounts for 89.3 per cent of foodgrains production growth across the full period, confirming the conventional emphasis, but the land frontier has not closed: mean annual area growth in the second half of the sample, at 0.53 per cent, exceeds the 0.06 per cent of the first half, and foodgrains area has risen by 284 lakh hectares from its 2002-03 trough. Second, and centrally, the elasticity of the pulses area share to its relative support price is +0.368 and highly significant, while the corresponding oilseeds elasticity is +0.061 and insignificant. Third, the crop hierarchy of yield growth has reversed: rice, wheat and cotton, the crops of the Green Revolution, have decelerated, while coarse cereals and pulses have accelerated.

The explanation offered for the central asymmetry is a trade-policy one, and it is testable against the existing literature rather than merely asserted. A support price can only bind if the domestic price would otherwise fall below it, and that depends on the border. India liberalised edible oil imports early and deeply, cutting the crude oil duty from 65 per cent in 1994 to 15 per cent in 1999, after which self-sufficiency fell from 97 per cent to 55 per cent (Sportel and Véron, 2016). Bandyopadhyay and Ramaswami (2025) show that the resulting import competition reduced both oilseed prices and oilseed area in the districts most exposed to it. For pulses, by contrast, India moved in the opposite direction, imposing quantitative restrictions from 2017. The contribution here is to show that the same instrument, applied to two crops with the same objective, produces a measurable effect in one case and none in the other, and that the difference tracks the trade regime rather than the price.

Section 2 reviews the literature, Section 3 sets out the framework and hypotheses, Section 4 the data and method, Section 5 the results, and Sections 6 and 7 discuss and conclude.

2. Literature Review

2.1 The sources of agricultural growth

The decomposition of output growth into area and yield components is among the oldest exercises in agricultural economics, and for India it is bound up with the assessment of the Green Revolution. The standard account holds that output growth from the late 1960s was driven by yield gains on a broadly fixed land base, as high-yielding varieties, fertiliser and irrigation were adopted in the wheat belt and later in rice. Janaiah et al. (2006) document the productivity impact of modern rice varieties, and Hossain (2007) sets the Indian experience within the wider question of whether technological progress can sustain the food-population balance. Later work has questioned how far those gains extended beyond the initial crops and regions. Singh (1993) showed early that the Green Revolution raised the instability of foodgrain production as well as its level, and Stone (2019) reviews the revisionist histories that have complicated the standard account. Rada (2016) asks directly what is driving India's post-Green-Revolution agricultural performance, and Khan et al. (2020) examine the state-wise record of the post-reform period. Revadekar and Preethi (2011) remind us that a substantial part of year-to-year variation in foodgrain yield is monsoon-driven rather than policy-driven, which is why the analysis below works with era averages rather than annual movements. What is less often examined is whether the area margin has genuinely closed, a proposition usually assumed rather than demonstrated.

2.2 Supply response and administered prices

The supply-response literature asks how farmers reallocate land in response to relative prices. The Nerlovian tradition estimates partial-adjustment models of acreage on lagged prices, and the general finding for developing agriculture is that acreage responds to relative prices with an elasticity well below unity, constrained by irrigation, rotation requirements and credit. Kanwar and Sadoulet (2008) revisit dynamic output response for Indian cash crops and find responses that are real but modest. The same reduced-form question has been asked of policy-driven price changes elsewhere: Gardebroek et al. (2017) estimate the effect of biofuel policies on crop acreages in Germany and France, and Koutchadé et al. (2018) model heterogeneous farm-level responses to European Union biofuel support, both finding that administered price incentives move area but by less than the incentive itself would imply. Mittal and Reimer (2008) ask the counterfactual question for India, whether farmers would benefit from liberalisation of world cotton and sugar markets, which is the mirror image of the question asked here. For India the administered price adds a particular feature: the MSP is announced before sowing, so it is observable at the moment the planting decision is made, which removes the expectation-formation problem that complicates market-price studies. That makes the MSP an unusually clean right-hand-side variable, a property this article exploits.

An announced price is not necessarily an effective price, however. The MSP binds only where procurement is operative or where the market price would otherwise fall below it. Procurement in India has historically been concentrated in rice and wheat and in particular states, and the coverage of pulses and oilseeds under the Price Support Scheme has been intermittent. Aditya et al. (2017) provide the sharpest evidence on this point from the 70th round of the National Sample Survey: only 23.7 per cent of rural agricultural households were aware of the support price for the crops they themselves grew in the kharif season and 20.0 per cent in the rabi season, and they conclude that the instrument needs to be backed by effective procurement and extension if it is to influence cropping decisions. Jacoby (2015) shows in a related setting that the welfare consequences of Indian food prices depend on how far price changes are transmitted to rural wages and households, which is another reason an announced price and a received price may diverge. The distinction between an announced and an effective price is central to the interpretation offered below.

2.3 Trade liberalisation and the oilseeds sector

India's edible oil sector moved from near-autarky to heavy import dependence within a decade. Quantitative restrictions were removed from 1994, the crude oil duty fell from 65 per cent in 1994 to 15 per cent in 1999, and self-sufficiency fell from 97 per cent in 1993 to 55 per cent by 2001 (Sportel and Véron, 2016). Bandyopadhyay and Ramaswami (2025) examine the spatial consequences within a panel framework, constructing district-level exposure to the trade shock from the share of cultivated area planted with oilseeds. They find significantly greater price impacts in the high oilseed-growing regions, consistent with a model of spatial price competition, and significantly greater cropping-pattern and production responses in those same regions, although the effects do not extend to wages or to labour reallocation outside agriculture. They also record the earlier judgement that pre-liberalisation growth in oilseed output had come from pressing more area into cultivation, at the expense of pulses and millets, rather than from higher yields, and that oilseeds occupy about 14 per cent of India's cultivated land, second in importance only to rice and wheat.

Two features of that literature matter here. It establishes that the domestic oilseed price is disciplined by the border rather than by the support price, and it works at the district level within a panel. The national time-series question of whether the support price nevertheless retains any power over aggregate area allocation, and how that compares with a crop group facing the opposite trade regime, has not been addressed.

2.4 The gap

The comparison crop group has its own literature. Joshi and Rao (2016) survey the global pulses scenario and note that India is simultaneously the largest producer and the largest importer, with a persistent gap between domestic supply and demand that policy has repeatedly tried to close. What that literature does not do is set the pulses experience beside the oilseeds experience as a controlled comparison of the same instrument.

The literature therefore contains a well-established decomposition method, a body of supply-response estimates, survey evidence that the announced support price is imperfectly known and imperfectly effective, and strong district-level evidence that trade liberalisation reduced oilseed area. It does not contain a comparative test of the same policy instrument across two import-competing crop groups that differ in their trade regime, nor a re-examination of the closed-frontier assumption against the full published series. This article addresses both.

3. Framework and Hypotheses

3.1 Decomposition

Production is the product of area and yield, $P = A \times Y$, so in growth rates

$$gP \approx gA + gY \tag{1}$$

and the share of production growth attributable to area is gA/gP, with the yield share the remainder. The approximation neglects an interaction term that is second-order at observed growth rates. Computing the two shares by era answers the first question directly.

3.2 Area allocation and the relative support price

Let s_j be the share of cultivated area under crop group j and r_j the ratio of that group's mean support price to the mean support price of the competing cereals. The estimating equation is

$$\ln s_j(t) = \alpha + \beta \ln r_j(t) + \varepsilon(t) \tag{2}$$

where β is the elasticity of the area share to the relative support price. Because the MSP is announced before sowing, the contemporaneous specification is defensible; a lagged version is also reported. A positive and significant β indicates that the instrument reallocates land; a coefficient indistinguishable from zero indicates that it does not, whatever its announced level.

3.3 Hypotheses

H1: Yield accounts for the dominant share of foodgrains production growth over the full period.

H2: The contribution of area expansion to production growth has declined towards zero as the land frontier closed.

H3: The area share of pulses responds positively and significantly to the relative support price.

H4: The area share of oilseeds responds positively and significantly to the relative support price.

4. Data and Method

4.1 Data

All data are from the Reserve Bank of India Handbook of Statistics on the Indian Economy 2025-26, which compiles the estimates of the Ministry of Agriculture and Farmers Welfare together with the Commission for Agricultural Costs and Prices, the Tea Board and the Coffee Board. RBI data are used and their coverage is given in Table 1. Production and yield of foodgrains are available from 1968-69 and 1969-70 respectively, area from 1969-70, and support prices from 1993-94. Figures for 2025-26 are Third Advance Estimates.

Definitions follow the source. Foodgrains comprise cereals, which are rice, wheat and coarse cereals, together with pulses. Oilseeds comprise groundnut, castorseed, sesamum, nigerseed, rapeseed and mustard, linseed, safflower, sunflower and soyabean. Cotton and raw jute are measured in bales, sugarcane in terms of cane, and area for tea and coffee is provisional. The relative support price for pulses is the mean of the gram, arhar, moong and urad prices divided by the mean of the paddy and wheat prices; the oilseeds equivalent uses groundnut, soyabean yellow, sunflower seed, rapeseed and mustard, and safflower. Area shares are computed on the sum of foodgrains, oilseeds, cotton and sugarcane area, the four groups for which the Handbook reports a continuous series.

4.2 Method

Growth rates are compound annual rates computed between terminal years of each era, with eras defined on the policy chronology: the consolidation of the Green Revolution to 1979-80, the pre-reform period to 1990-91, the post-reform period to 2004-05, the National Food Security Mission and commodity price boom to 2013-14, and the recent period. Equation (2) is estimated by ordinary least squares with Newey-West standard errors using two lags, in levels and with the regressor lagged one year. The closed-frontier hypothesis is examined through a ten-year rolling decomposition and a Welch two-sample test on annual area growth between sample halves. Computations used Python 3 with pandas, statsmodels and SciPy.

5. Results

5.1 The sources of production growth

Table 2 reports the decomposition. Over the full period from 1969-70 to 2025-26 foodgrains production grew at 2.41 per cent a year, area at 0.25 per cent and yield at 2.15 per cent, so yield accounts for 89.3 per cent of production growth and area for 10.5 per cent. H1 is supported, and the magnitude confirms the conventional emphasis on yield. Figure 1 shows the three series indexed to 1969-70: production and yield rise together while area is almost flat for three decades.

The era detail is more interesting than the average. The pre-reform decade from 1979-80 to 1990-91 was the strongest in the sample, with production growing at 4.41 per cent almost entirely on yield, whose share was 95.6 per cent. The post-reform period from 1990-91 to 2004-05 was the weakest, with production growth of only 0.84 per cent and an area contribution that was actually negative at minus 0.44 per cent a year, so that yield had to more than offset a contracting land base. Foodgrains area fell to a trough of 1,139 lakh hectares in 2002-03, its lowest reading since the early 1970s.

5.2 The land frontier has not closed

H2 is rejected, and the rejection is the article's first substantive departure from the received account. Foodgrains area has risen from its 2002-03 trough of 1,139 lakh hectares to 1,423 lakh hectares in 2025-26, an increase of 284 lakh hectares or 24.9 per cent. Mean annual area growth was 0.06 per cent between 1969-70 and 1997-98 and 0.53 per cent between 1997-98 and 2025-26, and although the difference is not statistically significant on a Welch test ($t = -0.560$, $p = .578$) its sign is the opposite of what the closed-frontier account predicts. A ten-year rolling estimate of the area share of production growth stands at 13.8 per cent in the window ending 1979-80 and 36.5 per cent in the window ending 2025-26, and the linear trend through it is statistically indistinguishable from zero (+0.516 percentage points per year, $p = .843$).

In the most recent era, from 2013-14 to 2025-26, area contributed 34.3 per cent of production growth, more than three times its full-period share. The land frontier in Indian foodgrains is therefore better described as elastic than as closed, and the elasticity operates through the reclaiming of area from other uses and through increased cropping intensity rather than through new land. Any projection that assumes zero area growth will understate attainable output.

5.3 The price signal: pulses and oilseeds

Table 4 reports the central result and Figure 2 displays it. For pulses the elasticity of the area share to the relative support price is +0.368 with a standard error of 0.068 ($p < .001$, $R^2 = 0.646$), so H3 is supported. For oilseeds the elasticity is +0.061 with a standard error of 0.080 ($p = .444$, $R^2 = 0.025$), so H4 is rejected. Lagging the regressor one year leaves both conclusions intact, at +0.362 ($p < .001$) and +0.089 ($p = .311$) respectively.

The contrast is not a matter of the instrument being withheld from oilseeds. Between 1993-94 and 2025-26 the relative oilseeds support price rose from 2.30 to 2.67, an increase of 16 per cent, and yet the oilseeds share of cultivated area was 16.8 per cent at the start and 16.2 per cent at the end. Over the same period the relative pulses support price rose from 2.08 to 3.07, an increase of 48 per cent, and the pulses share of foodgrains area rose from 18.2 per cent to 20.1 per cent, having peaked at 23.6 per cent in 2021-22. The scatter in Figure 2 shows a clear positive relation in the left panel and an essentially flat cloud in the right.

The interpretation is a trade-policy one. A support price can only alter planting decisions if it is the price the farmer expects to receive, and that requires either operative procurement or a border that prevents the market price falling below the announced level. For pulses, India tightened import policy from 2017 and expanded procurement, so the announced price became closer to the effective price. For oilseeds the reverse holds: the evidence in Bandyopadhyay and Ramaswami (2025) is that the domestic price is set at the border, with pass-through strongest precisely in the districts that grow the most oilseeds. A support price announced above a border-determined price is not a price at which output is actually sold, and the estimated elasticity reflects that. The instrument is not weak in general; it is weak where the border is open.

5.4 The reversal in yield growth

Table 5 and Figure 3 report yield growth by crop for the early and recent periods. The pattern is a reversal of the Green Revolution hierarchy. Wheat yield growth fell from 3.07 per cent a year between 1969-70 and 1990-91 to 1.30 per cent between 2013-14 and 2025-26, and rice from 2.33 to 1.55 per cent. Cotton yield growth, at 2.96 per cent in the early period, is negative at −1.45 per cent in the recent one, the yield having fallen from 510 kilograms per hectare in 2013-14, and a sample peak of 512 in 2016-17, to 428 in 2025-26. Coarse cereals, by contrast, accelerated from 2.13 to 4.15 per cent, and pulses from 0.40 to 1.89 per cent.

In levels the ranking is unchanged and the gap remains wide. Between 1969-70 and 2025-26 coarse cereal yields rose 4.73 times and wheat 2.97 times, while pulses rose only 1.80 times, from 531 to 957 kilograms per hectare. Pulses remain the least productive major crop group in India despite the recent acceleration, and the acceleration begins from a very low base.

5.5 Robustness

Three checks are relevant. The support-price series begins in 1993-94, so the elasticity estimates rest on thirty-three observations; the pulses result is significant at the 0.1 per cent level and is therefore not fragile to the sample length, while the oilseeds null cannot by construction be distinguished from a low-power failure to reject, a limitation stated rather than resolved. Second, the terminal year is a Third Advance Estimate; excluding it changes the pulses elasticity to +0.375 ($p < .001$) and the oilseeds coefficient to +0.057 ($p = .494$), so neither conclusion depends on it. Third, the area-share denominator excludes crops for which the Handbook does not publish a continuous series, principally horticulture, whose expansion is real and would if included reduce all shares proportionately without altering the relative comparison on which the finding rests.

6. Discussion

The results speak to two debates. On the sources of growth, the finding that yield accounts for 89 per cent of production growth over the full period supports the conventional emphasis, but the finding that the area contribution has risen rather than fallen qualifies it in a way that matters for projection. Policy documents routinely assume that output growth must henceforth come entirely from yield because no land remains. The record does not support that assumption for the last two decades. Whether the recovery in area is durable is a separate question, and it may reflect the reclaiming of land from lower-value uses under favourable relative prices rather than a permanent enlargement of the cultivated base.

On the price instrument, the asymmetry between pulses and oilseeds is the article's principal contribution and it has a direct policy reading. Raising the oilseeds support price further, in the absence of a change in the trade regime or in procurement, should not be expected to move area. The elasticity is not merely small; it is statistically indistinguishable from zero across three decades during which the relative price was raised substantially. This is consistent with, and complements, the district-level evidence of Bandyopadhyay and Ramaswami (2025) that the domestic oilseed price is disciplined at the border. Their result explains why the announced price does not bind; the result here shows the consequence for the aggregate cropping pattern. The survey evidence of Aditya et al. (2017) supplies a second, complementary reason: an instrument that only a fifth of farmers know about cannot move much land, and their prescription of procurement and extension support is exactly what distinguishes the pulses case from the oilseeds case in the record examined here.

The comparison with pulses is instructive because it holds the instrument constant. The same agency announces both prices on the same schedule under the same statutory framework. What differs is the trade regime and the procurement effort behind them. India's achievement of near self-sufficiency in pulses after 2016 is usually attributed to higher support prices; the evidence here suggests that the price mattered because it was made effective by import restriction and procurement, not in spite of the trade regime. The corresponding implication for edible oils is that a price-only strategy is unlikely to succeed.

The yield reversal adds a third element. The crops whose yields are decelerating are precisely those in which India is already close to self-sufficiency and which absorb the bulk of procurement and input subsidy, while those accelerating are the neglected ones. Cotton is the sharpest case, with yields falling in absolute terms since 2013-14, a pattern consistent with the widely reported erosion of the effectiveness of the transgenic technology adopted in the previous decade. The composition of research and extension effort implied by these figures deserves attention in its own right.

7. Conclusion

Using the Reserve Bank of India Handbook of Statistics covering fifty-seven years, this article reaches three conclusions. Yield accounts for 89.3 per cent of foodgrains production growth over the full period, confirming the conventional account. But the land frontier has not closed: foodgrains area has risen by 284 lakh hectares from its 2002-03 trough, area growth in the second half of the sample exceeds that in the first, and area contributed 34.3 per cent of production growth in the most recent era. And the minimum support price reallocates area for pulses, with an elasticity of +0.368, but not for oilseeds, where the elasticity of +0.061 is indistinguishable from zero despite a substantial increase in the relative price.

Three policy implications follow. Projections of Indian foodgrain output should not assume a fixed land base, since the recent record contradicts it. Support-price policy for oilseeds should be evaluated jointly with trade policy, because the announced price cannot bind while the domestic price is set at the border; a price increase unaccompanied by border or procurement measures is unlikely to change the cropping pattern. And the deceleration of yield growth in rice, wheat and cotton, alongside acceleration in coarse cereals and pulses, suggests that the marginal return to research and extension may now be higher in the crops that received least attention during the Green Revolution.

The study has limitations. It is national and annual, so it cannot identify the state-level or farm-level mechanisms through which area responds, and the district-level approach of Bandyopadhyay and Ramaswami (2025) is better suited to that question. The support-price series begins in 1993-94, giving thirty-three observations, and the oilseeds null result cannot be distinguished from low power. The specification relates area shares to relative announced prices without controlling for irrigation, rainfall or input costs, which would be necessary for a structural supply-response estimate rather than the reduced-form comparison offered here. And the terminal observations are advance estimates.

Three extensions follow directly. A state-level panel would allow the trade-regime explanation to be tested against procurement intensity, which varies widely across states and would separate the two channels that this national series cannot. Extending the comparison to a period after any future change in edible oil tariffs would provide a natural experiment on the same instrument. And repeating the exercise for horticulture, once a continuous published series exists, would establish whether the area recovery documented here is a reallocation within field crops or a genuine expansion of the cultivated base.

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Tables

Table 1. Source tables and their coverage.

Content	Unit	Span
Index numbers of area, production and yield, all crops	index	1969-70 to 2025-26
Index numbers of agricultural production, major crops	index	1969-70 to 2025-26
Production, foodgrains	lakh tonnes	1968-69 to 2025-26
Production, major commercial crops	lakh tonnes	1968-69 to 2025-26
Area under cultivation, foodgrains	lakh hectares	1969-70 to 2025-26
Area under cultivation, major commercial crops	lakh hectares	1969-70 to 2025-26
Yield per hectare, foodgrains	kg per hectare	1969-70 to 2025-26
Yield per hectare, major commercial crops	kg per hectare	1969-70 to 2025-26
Minimum support price, foodgrains	Rs per quintal	1993-94 to 2025-26
Minimum support price, non-foodgrains	Rs per quintal	1993-94 to 2025-26

Source: Reserve Bank of India, Handbook of Statistics on the Indian Economy 2025-26. Table numbers are those of the source.

Table 2. Foodgrains: growth of production, area and yield, and the sources of production growth (per cent per annum).

Period	Production	Area	Yield	Area share	Yield share
Green Revolution consolidation, 1969-70 to 1979-80	0.98	0.13	0.85	13.1	86.6
Pre-reform, 1979-80 to 1990-91	4.41	0.19	4.22	4.2	95.6
Post-reform, 1990-91 to 2004-05	0.84	-0.44	1.29	-52.5	153.4
NFSM and price boom, 2004-05 to 2013-14	3.27	0.53	2.71	16.3	82.8
Recent, 2013-14 to 2025-26	2.97	1.02	1.94	34.3	65.3
Full period, 1969-70 to 2025-26	2.41	0.25	2.15	10.5	89.3

Notes: Compound annual growth rates between terminal years. The area share is the ratio of area growth to production growth expressed as a percentage, and the yield share the ratio of yield growth to production growth; the two sum to approximately 100 because the interaction term is neglected. In the post-reform period area contracted, so its share is negative and the yield share exceeds 100. Source: computed from Reserve Bank of India, Handbook of Statistics on the Indian Economy 2025-26,

Table 3. The composition of cultivated area, selected years (per cent of the four-group total).

Year	Foodgrains	Oilseeds	Cotton	Sugarcane	Total (lakh ha)
1969-70	83.0	9.9	5.2	1.8	1,489
1990-91	78.4	14.8	4.6	2.3	1,631
2004-05	75.0	17.2	5.5	2.3	1,601
2013-14	73.7	16.4	7.0	2.9	1,710
2025-26	74.7	16.2	6.0	3.1	1,906

Notes: The denominator is the sum of foodgrains, oilseeds, cotton and sugarcane area. Source: computed from Reserve Bank of India, Handbook of Statistics on the Indian Economy 2025-26,

Table 4. Elasticity of the area share to the relative minimum support price, 1993-94 to 2025-26.

Specification	Crop group	n	Elasticity	SE	p	R-squared
Contemporaneous	Pulses	33	+0.368	0.068	<.001	.646
Contemporaneous	Oilseeds	33	+0.061	0.080	.444	.025
Regressor lagged one year	Pulses	32	+0.362	0.070	<.001	.620
Regressor lagged one year	Oilseeds	32	+0.089	0.088	.311	.052
Excluding 2025-26 estimate	Pulses	32	+0.375	0.069	<.001	.654
Excluding 2025-26 estimate	Oilseeds	32	+0.057	0.084	.494	.021

Notes: Ordinary least squares estimates of equation (2), the log of the area share on the log of the relative minimum support price, with Newey-West standard errors using two lags. The relative price for pulses is the mean of the gram, arhar, moong and urad support prices divided by the mean of the paddy and wheat prices; for oilseeds it is the mean of the groundnut, soyabean (yellow), sunflower seed, rapeseed and mustard, and safflower prices over the same denominator. Source: computed from Reserve Bank of India, Handbook of Statistics on the Indian Economy 2025-26,

Table 5. Yield growth by crop (per cent per annum) and yield levels (kg per hectare).

Crop	1969-70 to 1990-91	2013-14 to 2025-26	Full period	Yield 1969-70	Yield 2025-26
Rice	2.33	1.55	1.80	1,073	2,915
Wheat	3.07	1.30	1.96	1,208	3,591
Coarse cereals	2.13	4.15	2.81	578	2,733
Pulses	0.40	1.89	1.06	531	957
Oilseeds	1.87	1.48	1.77	522	1,394
Cotton	2.96	-1.45	2.27	122	428
Sugarcane	1.37	1.57	0.98	49,121	84,987

Notes: Compound annual growth rates between terminal years. The full period is 1969-70 to 2025-26. Cotton yield is in kilograms of lint per hectare and sugarcane in terms of cane. Source: computed from Reserve Bank of India, Handbook of Statistics on the Indian Economy 2025-26,

Table 6. Summary of hypotheses and outcomes.

Hypothesis	Statement	Evidence	Outcome
H1	Yield dominates foodgrains production growth	Yield share 89.3 per cent over 1969-70 to 2025-26 (Table 2)	Supported
H2	The area contribution has declined towards zero	Rolling area share trends +0.516 pp per year, $p = .843$; area growth 0.06 per cent in the first half against 0.53 per cent in the second	Rejected
H3	The pulses area share responds to relative MSP	Elasticity +0.368, $p < .001$, R-squared .646 (Table 4)	Supported
H4	The oilseeds area share responds to relative MSP	Elasticity +0.061, $p = .444$, R-squared .025 (Table 4)	Rejected

Source: computed as described in Sections 4 and 5.

Figures

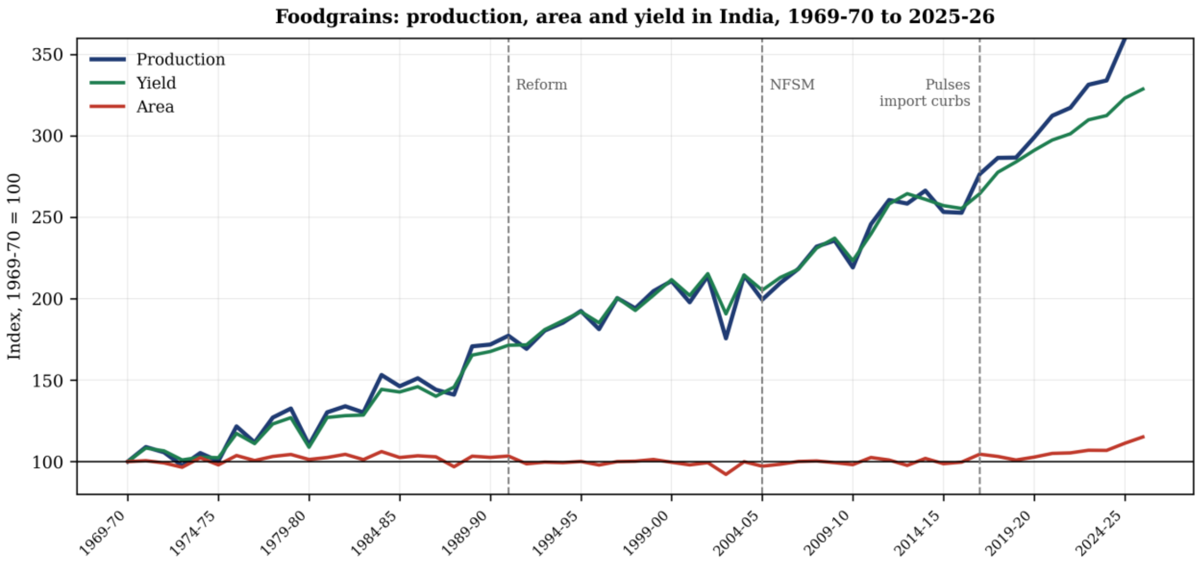

Figure 1. Foodgrains production, area and yield in India, 1969-70 to 2025-26 (index, 1969-70 = 100). Source: computed from Reserve Bank of India, Handbook of Statistics on the Indian Economy 2025-26, Tables 16, 18 and 20.

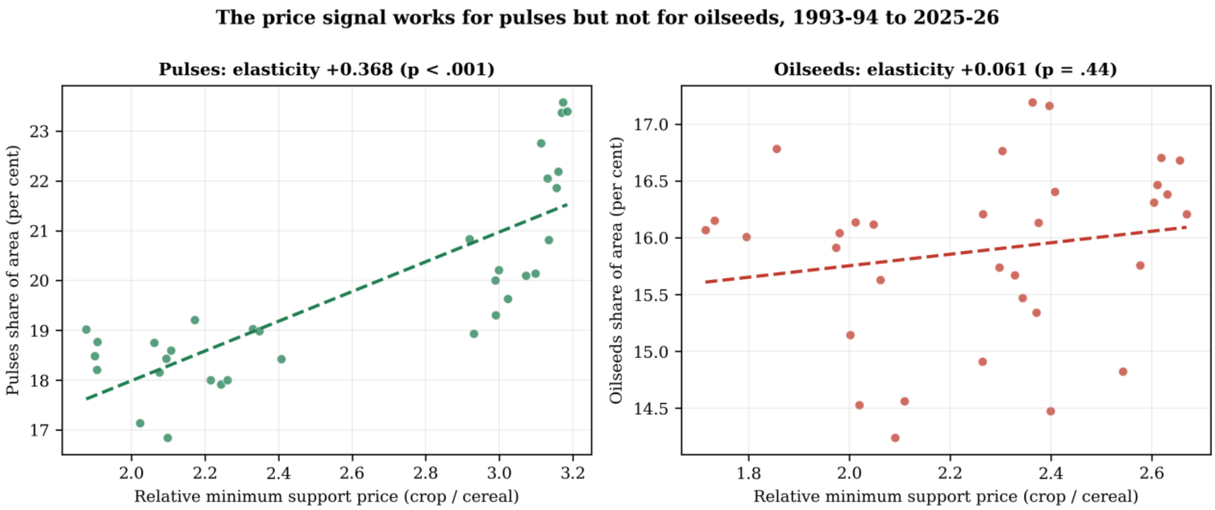

Figure 2. The relative minimum support price and the area share, pulses and oilseeds, 1993-94 to 2025-26. Source: computed from Reserve Bank of India, Handbook of Statistics on the Indian Economy 2025-26, Tables 18, 19, 23 and 24.

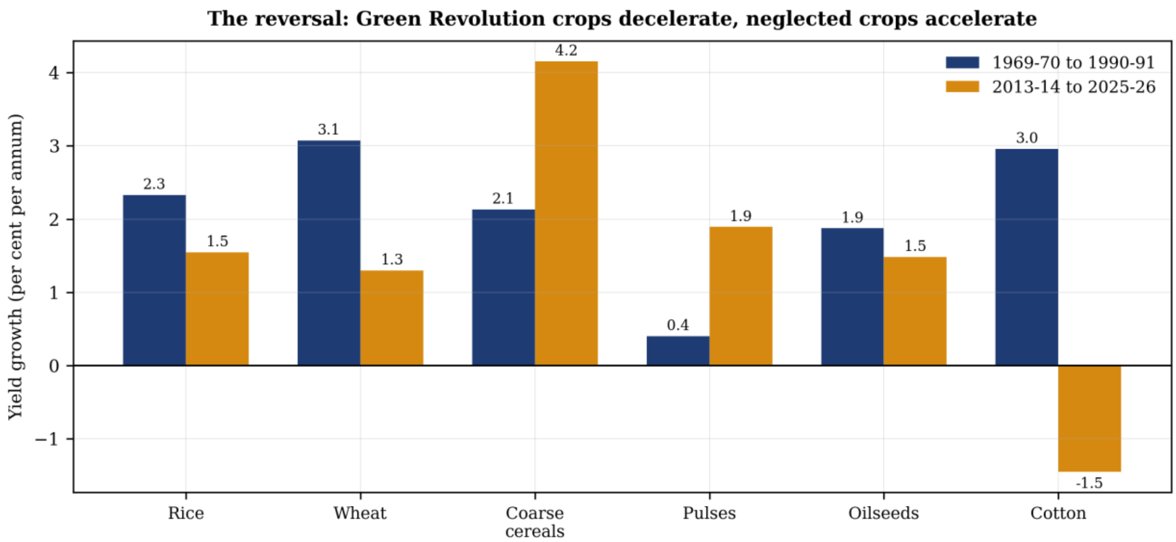

Figure 3. Yield growth by crop, 1969-70 to 1990-91 against 2013-14 to 2025-26 (per cent per annum). Source: computed from Reserve Bank of India, Handbook of Statistics on the Indian Economy 2025-26, Tables 20 and 21.