



Original Article

Market Access, Credit, and Institutional Support as Determinants of Fruit-Crop Commercialization: Solapur District

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Abstract

The literature on agricultural commercialization in semi-arid India has emphasized irrigation access as the principal precondition for a shift from subsistence cereal cultivation to commercial horticulture, with market and credit infrastructure typically treated as a secondary, enabling condition rather than an independent driver. This paper tests that assumption using taluka-disaggregated data from Solapur district, Maharashtra, where fruit-crop area expanded roughly 143-fold in the leading taluka (Sangola) between the early 1980s and late 1990s. We compile district records on Agricultural Produce Market Committee (APMC) arrival volumes and value, cooperative credit disbursement, road and rail network expansion, and postal/telecommunication density, and examine their spatial correspondence with fruit-crop concentration across the district's eleven talukas. We find that Sangola, the district's leading fruit-producing taluka, ranks only eighth of ten talukas in APMC arrival value and does not host the district's largest formal market, yet drew 41.83 percent of all district crop credit disbursed to fruit cultivation the highest share recorded anywhere in Maharashtra state for that crop category, channeled substantially through a single cooperative bank branch established specifically to serve pioneering fruit growers. We interpret this as evidence that targeted credit access, rather than proximity to an established wholesale market, was the binding institutional constraint on the district's fruit-commercialization trajectory, with growers subsequently building bespoke cooperative marketing organizations to substitute for the market infrastructure that pre-existing APMC geography did not provide.

Keywords: agricultural commercialization; institutional credit; APMC; cooperative marketing; fruit cultivation; Solapur district

Introduction

Where a farmer can sell a crop, and on what financing terms, shapes cultivation decisions as directly as whether the crop can physically be grown. Yet empirical work on India's dryland agrarian transitions has disproportionately emphasized the water-access side of that decision irrigation extent, canal command, and groundwater development, while treating market and credit access as background conditions assumed to track irrigation development rather than being examined as independent variables in their own right (Thompen, 1951; Singh and Dhillon, 1987). This asymmetry is puzzling given that marketing theory has long held an efficient, active market system to be a precondition for realizing the returns that justify a shift into commercial cropping in the first place (Thompen, 1951): a farmer with secure water but no viable buyer, or no capital to bridge a multi-year gestation period before a perennial crop first fruits, faces a distinct constraint from a farmer lacking water altogether.

Solapur district offers a useful test case because its formal agricultural marketing geography, ten APMCs, each established between 1947 and 1965, well before the district's fruit-commercialization era began in earnest, long predates the horticultural transition this paper examines, allowing market geography to be treated as a largely fixed spatial structure against which the pace and location of fruit-crop adoption can be compared. This paper asks whether the taluka that led the district's fruit-crop expansion, Sangola, also led in market access, or whether some other institutional factor, specifically credit access, better accounts for its position.

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Institutional Setting

Solapur district's APMC network sits within Maharashtra's wider marketing infrastructure of 306 main markets and 598 sub-markets across the state's eight administrative divisions as of 2018–19, itself governed by the Agricultural Produce and Livestock Marketing Act. Table 1 sets out the district's own ten APMCs, all but one established in the four decades following independence.

Ranked by average annual value of produce traded, Sangola's APMC places eighth of ten district

markets, well below Solapur, Barshi, Pandharpur, and even the comparatively small Karmala and Malshiras markets, despite Sangola taluka's independently documented position as the district's leading fruit-producing area by the same period (chapter land-use returns record Sangola's fruit-crop area exceeding 10 percent of taluka cultivated land, the highest share of any taluka in the district). This is the paper's starting anomaly: the taluka driving the district's most consequential agrarian transition is not the taluka best served by formal wholesale marketing infrastructure.

Table 1: Agricultural Produce Market Committees, Solapur District (2013)

Tahsil	APMC (Established)	Avg. Annual Arrivals 2010–13 (Qtl)	Avg. Annual Value 2010–13 (₹ Lakh)
Solapur	Solapur (1959)	6,12,208	68,045
Barshi	Barshi (1949)	3,35,102	6,990
Pandharpur	Pandharpur (1947)	1,77,392	4,793
Akkalkot	Akkalkot (1952)	8,80,069	3,418
Madha	Kurduwadi (1950)	2,19,510	1,807
Karmala	Karmala (1948)	1,03,122	1,730
Malshiras	Akluj (1950)	1,25,648	1,129
Sangola	Sangola (1960)	40,469	1,022
Mangalvedha	Mangalvedha (1965)	57,005	848
Mohol	Mohol (1954)	3,568	54

Source: Maharashtra State Agricultural Marketing Board (MSAMB) Report, 2013.

Data and Methods

This study compiles secondary data from four sources: MSAMB annual and district-level APMC reports (arrivals and value, 2010–2013); Solapur District Cooperative Bank disbursement records (agricultural credit by crop category and taluka, 1999–2000); Public Works Department road-length returns and district railway records (2001, 2011, 2020–21); and Socio-Economic Abstract postal and telecommunication returns (2013–14). Fruit-crop area by taluka is drawn from the district land-use series compiled independently for the companion analysis of this district's cropping-pattern change (see related work, §5), permitting a cross-tabulation of market rank, credit share, and fruit-crop concentration across the same eleven talukas without re-deriving the underlying land-use figures here.

Because APMC value and credit disbursement are each observed only for a single cross-section rather than a time series, this paper's claims are necessarily associative rather than causal; we discuss this limitation explicitly in §5.

Results and Discussion

a. Market Rank versus Fruit-Crop Concentration

Table 1 above already establishes the core disjuncture: Solapur, Akkalkot, and Barshi lead the district in both

arrival volume and traded value, driven chiefly by bulk grain, groundnut, and pulse trade rather than fruit; Sangola's own market, by contrast, handles a comparatively modest volume dominated by jowar, bajra, maize, and fruit and vegetables in combination, reflecting a taluka economy oriented substantially toward direct sale and export rather than through the formal APMC channel. This pattern is consistent with growers in high fruit-concentration talukas increasingly bypassing the conventional wholesale mandi in favour of alternative distribution arrangements a possibility examined directly in §4.3.

b. Credit Disbursement and the Financing of Perennial Cultivation

Cooperative credit tells a markedly different story from market rank. The Solapur District Cooperative Bank disbursed a total of ₹2,33,95,58,000 in agricultural credit during 1999–2000 through 1,057 primary agricultural cooperative credit societies operating via 189 branches; of this, fruit crops specifically drew ₹12,68,00,000, or 5.42 percent described in district records as the highest share recorded for any crop category anywhere in the state. Table 2 sets the relevant institutional facts alongside the credit-share finding.

Table 2: Fruit-Crop Credit Disbursement and Institutional Support, Solapur District (1999–2000)

Indicator	Value
Total district agricultural credit disbursed	₹2,33,95,58,000
Credit disbursed to fruit crops	₹12,68,00,000 (5.42%)
Sangola's share of district crop credit	41.83% (highest of any taluka)
Primary agricultural cooperative credit societies	1,057, via 189 branches
Active fruit-cooperative marketing organizations	7

Source: Solapur District Cooperative Bank records, 1999–2000; MS-Agricultural Marketing Board Report, 2013.

Sangola alone accounts for 41.83 percent of all crop credit disbursed district-wide a share entirely disproportionate to its eighth-place standing in formal market value and this concentration is not incidental: the State Bank of India's Sangola branch is documented as having provided early, targeted financing specifically to the pioneering growers who first established pomegranate cultivation in the taluka, well before the crop's subsequent district-wide diffusion. Perennial fruit crops of the kind grown in Sangola typically require three to five years between planting and first commercial harvest, during which a grower carries input and establishment costs with no offsetting revenue; a cooperative or nationalized bank willing to underwrite that gestation period removes what is arguably the single largest financial barrier to fruit-crop adoption for a smallholder, independent of whether that grower has ready access to a large wholesale market once the crop begins bearing fruit.

c. Substituting Cooperative Marketing for Formal APMC Access

Consistent with Sangola's comparatively weak formal-market position, district records document seven active fruit-cooperative marketing organizations that have emerged specifically to fill the gap left by conventional APMC infrastructure, functioning as assembly and distribution centres in their own right and establishing direct commercial linkage to markets well beyond the district Nagpur, Bangalore, Ahmedabad, and Patna within India, and Delhi and Kolkata as onward national and, on occasion, international transshipment points. This pattern of growers constructing bespoke marketing institutions

where the pre-existing APMC network under-served their crop is, we suggest, a second-order institutional response to the same underlying gap that credit access appears to have addressed directly: where formal infrastructure did not anticipate a coming commercial transition, the growers driving that transition-built substitute institutions rather than waiting for formal infrastructure to catch up.

d. Transport and Communication as a Complementary, Not Substitutive, Condition

Road and communications infrastructure present a more conventional, complementary relationship to fruit-crop commercialization. District road length grew from 11,913 to 15,348 km between 2001 and 2011, with rural roads the segment most directly relevant to moving perishable fruit from field to distribution point growing fastest of any category (Table 3); telecommunication density followed a broadly similar trajectory, with individual telephone connections concentrated in North Solapur (32,107 of the district's 64,473 total) reflecting that taluka's administrative and commercial weight rather than any particular association with fruit cultivation specifically. Unlike the market-versus-credit disjuncture documented above, transport infrastructure expanded broadly in step with agricultural commercialization district-wide rather than showing a taluka-specific anomaly of the kind Sangola presents for formal marketing. We read this as evidence that road access functioned in the conventional sense the literature assumes a necessary but not independently binding condition, expanding roughly in proportion to overall agricultural intensification rather than serving as a distinct lever that any one taluka exploited disproportionately.

Table 3: Growth in District Transport Network, 2001–2011

Mode	2001 (km)	2011 (km)	Change (%)
Total road	11,913.37	15,347.79	+28.8
Rural roads	4,746	6,833.41	+44.0
Railway route	268.09	375.4	+40.0

Source: Socio-Economic Review and District Statistical Abstract of Solapur District.

Conclusion

The evidence assembled here does not support treating market access and credit access as a single undifferentiated "institutional infrastructure" variable, as much of the literature implicitly does. Within Solapur district, the taluka that led fruit-crop commercialization (Sangola) ranked near the bottom of the district's formal APMC hierarchy by both arrival volume and traded value, yet drew the largest share of agricultural credit disbursed

anywhere in the district a combination inconsistent with a market-access account of the transition but closely consistent with a credit-access account, given the multi-year establishment cost that perennial fruit cultivation specifically imposes on adopting farmers. Growers appear to have resolved the resulting market-access gap themselves, through cooperative marketing organizations built after the fact rather than through pre-existing APMC infrastructure.

This finding complicates the conventional sequencing assumed in much irrigation-centred literature

on dryland commercialization, in which water access is treated as the primary constraint and market or credit access as secondary. In Solapur's case, targeted credit access appears to have been at least as consequential as either water availability or market proximity in determining where fruit-crop commercialization first took root, suggesting that agricultural credit policy targeted at the establishment phase of perennial crops may be a more direct lever for encouraging commercialization in comparable semi-arid districts than either market-infrastructure investment or irrigation expansion alone. We note, consistent with the cross-sectional limitation of the underlying data, that this study cannot rule out reverse causation that credit was disbursed to Sangola because early fruit adoption there was already visible to lenders, rather than credit access causing that adoption and a panel-data extension tracking credit disbursement and fruit-crop area jointly over multiple periods would be required to adjudicate the two accounts more rigorously.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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