

Assessing the Socioeconomic Impact of Minimum Support Price and e-NAM on Smallholder Farmers in Haryana

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Abstract:

Implementation of Minimum Support Price (MSP) and the Electronic National Agriculture Market (e-NAM) has had a substantial impact on India's agricultural landscape, particularly in the state of Haryana. This research paper examines the socioeconomic impact of MSP and e-NAM on smallholder farmers in Haryana. Through a combination of quantitative and qualitative methods, the study assesses the influence of these policies on farmers' income, market access, and crop choices. This research also seeks to contribute to the understanding of their implications for the economic well-being, agricultural productivity, and overall livelihoods of smallholder farmers by examining the historical context, current implementation, and outcomes of these policies. The findings indicate that while MSP has positively affected farmers' income, e-NAM has improved market access, and both policies have contributed to crop diversification. However, the paper also highlights the challenges faced by smallholder farmers in leveraging these policies effectively. This research provides valuable insights for policymakers and stakeholders aiming to enhance the welfare of smallholder farmers in Haryana.

Introduction:

India's agricultural sector plays a pivotal role in sustaining the livelihoods of a significant portion of the population, with smallholder farmers cultivating a substantial portion of the agricultural land. To ensure the stability of agricultural incomes, the government introduced the Minimum Support Price (MSP) mechanism, guaranteeing a floor price for certain crops. Additionally, the e-National Agriculture Market (e-NAM) was launched to create a unified market platform, aiming to enhance market access and price discovery for farmers. Haryana is the leading state for agriculture production in the country as it is the second largest contributor to India's Central pool of food grains. (Agriculture, 2016) As per census 2011, Haryana has 15th largest population engaged in agriculture with 44.96 per cent population engaged in agriculture. Of the total population engaged in agriculture, 38 per cent are labourers, who do not have their own land. About 46% of Haryana's total farm output in FY19 was only rice and wheat (Radhakrishnan et al., 2020) By Considering the cost of production, overall demand-supply situation of various crops in domestic and world markets, domestic and international prices, inter-crop price parity, terms of trade between agriculture and non-agriculture sector, likely effect of price policy on rest of the economy, rational utilization of land, water and other production resources and a minimum of 50 percent as the

margin over the cost of production, the Commission for agriculture costs and prices recommends the MSPs for the farmer's produce (Commission for Agricultural Costs and Prices, 2019). The Green Revolution strategy of the 1960s aimed to maximize food output and was the vehicle of achieving that goal. The government regulated mandis under the APMC Act has been an institutional mechanism of realizing that strategy. This incentivised farmers to shift from traditional farming—mostly subsistence farming of diverse crops— towards a focus on two main cereals—wheat and rice. The MSP, public procurement system (PPS) and a strict time bound purchase of output brought to the PPS (represented by Agricultural Produce Markets Committee, or APMC mandi yards) form a package deal. If you take out one aspect, the deal falls apart. For example, if you have the MSP but not compulsory PPS, the MSP becomes redundant. Similarly, if you have the MSP and even PPS/APMC mandi but not strict time-bound purchase of the produce brought to PPS, the deal will fail— especially if the product is a perishable commodity. (Singh & Bhogal, 2021)

e-NAM

The Electronic National Agricultural Market (e-NAM) system was introduced in July 2015 and was made operational by appointing the Small Farmers' Agribusiness Consortium (SFAC) as the leading implementing agency to operate and maintain the e-NAM platform. SFAC is a registered society of Department of Agriculture, Cooperation & Farmers' Welfare (DAC&FW) under MoA&FW. SFAC is involved in development, operation and maintenance of the e-NAM platform with technical support from the Strategic Partner viz. M/s Nagarjuna Fertilizer and Chemicals Limited, initially, for three years from 2015-16 to 2017-18. The Cabinet Committee on Economic Affairs approved a Central Sector Scheme for Promotion of e-NAM through Agri-Tech Infrastructure Fund (ATIF). The government has allocated Rs. 200 crore to the ATIF. The e-NAM system was first launched in India in 14 April 2016 with an initial coverage of 21 mandis across 8 states and allowing trading in 24 commodities on pilot basis (Press Information Bureau, 2016). Since then the number of mandis integrated with e-NAM has increased to 470 by October 2017 (<http://www.enam.gov.in>) and at present 479 mandis across fourteen states and in one union territory are covered by 21 February 2018 (The Economic Times, 2018) with a target of linking 585 mandis by March 2018. The broader objectives as proposed by MoA&FW for e-NAM include – (i) Transparent sale transactions and price discovery, (ii) Liberal licensing of traders / buyers and commission agents by state authorities, (iii) Harmonisation of quality standards of agricultural produce and provision for assaying, (iv) Single point levy of market fees, (v) Provision of scientific techniques such as soil testing laboratories, etc. The system is defined as a platform to create a national network of physical mandis which can be accessed online by different stakeholders. There are concerns of some stakeholders that the APMC mandis may become unviable if e-NAM is promoted, However, these apprehensions appear misplaced at this stage as local traders can also participate in bidding along with access to markets in other states. The farmers will have increased choices to sell their produce. But there are many existing loopholes in physical and online setup of current marketing 2 system and also technological issues. The system, once operational fully and effectively, is expected to lower intermediation costs and wastage by reducing market fragmentation and thereby, lower price for the final consumer. Basically there are three main stakeholders in the e-NAM system – farmers, traders and buyers/processers/ exporters. The registration and operational guidelines for stakeholders, training manuals, guidelines for using e-NAM mobile application for different stakeholders and action Plan for development of Model Mandis under e-NAM are available online. Details about tradable parameters of quality (superior, very good, good etc.) of the commodities includes moisture,

foreign matter, other edible grains, damaged grains, weevil led grains, immature and Shrivelled grains, uniformity, lustre etc.; physical appearance (colour, shape and size), defects and tolerance limits. The e-NAM system is implemented with a long-term vision of providing higher returns to farmers for their produce, reduce the transaction cost to buyers, stabilize market prices, encourage integrated value chains of commodities and motivate scientific techniques for storage and logistics.

India's agriculture sector is critical for the country's economy, employing a vast number of smallholder farmers. The Minimum Support Price (MSP) policy and the Electronic National Agriculture Market (e-NAM) platform are significant government initiatives aimed at ensuring fair prices for farmers and improving market access. This study focuses on their impact on smallholder farmers in Haryana, a state with a substantial agricultural presence.

Research Objectives:

1. To analyze the influence of MSP on the income and well-being of smallholder farmers in Haryana.
2. To examine the participation of smallholder farmers in e-NAM and its impact on market access and income.
3. To assess the role of MSP and e-NAM in crop diversification among smallholder farmers.
4. To identify the challenges faced by smallholder farmers in leveraging MSP and e-NAM effectively.

Literature Review:

Aditya et al., (2017) analyzes the awareness of farmers in India about Minimum Support Price (MSP) and its impact on crop diversification. The study finds that a low percentage of farmers are aware of MSP, and this awareness does not lead to crop specialization. The study suggests that effective procurement systems and awareness creation by extension systems are needed to enable more farmers to benefit from MSP. Saini et al., (2023) focuses on the factors that promote the usage of the electronic National Agriculture Market (e-NAM) in Rajasthan, India, which includes virtual highlights, capacity-building amenities, e-bidding design features, value-addition modules, and e-logistics features. These functionalities encourage stakeholders to sell their products across Indian states using digital platforms, leading to higher prices compared to traditional markets. The e-NAM platform has shortened the supply chain by connecting physical markets of multiple states on a virtual stage using ICT.

Yadav et al., (2020) proposes the use of blockchain technology to enhance transparency and efficiency in agricultural transactions in the APMCs, based on a case study conducted in three APMCs in Uttar Pradesh. The study analyzes the ground-level practices and adoption of e-NAM in the APMCs, highlighting the variation in arrival and bidding prices compared to the agriculture market information system.

Garg & Singhal, (2022) discusses the shift towards digitalization in the agricultural sector globally, including India, and highlights the challenges associated with the commercialization of agricultural produce. It mentions limited access to market information, intermediaries in the supply chain, financial problems, lack of infrastructure, and storage facilities as some of the challenges. The paper also mentions various initiatives taken by the central government, state government, and private sector, such as E-NAM (Electronic National Agriculture Market), contract farming, and agricultural apps, which aim to revolutionize agricultural marketing. The study analyzes the progress of these initiatives from April 2016 to 2020 and suggests that they have the potential to transform agriculture into a business venture and attract the younger generation to the sector.

Tyngkan et al., (2021) examines the impact of the e-NAM intervention on the arrivals and prices of paddy in Nawapara APMC, Chhattisgarh, and finds that both the monthly arrivals and modal prices of paddy were higher after the integration of e-NAM. The implementation of the e-NAM platform in the APMC has positive effects on arrivals and prices, with factors such as remunerative price, better price than open auction, transparency, and absence of middlemen influencing farmers' participation in the platform.

Ritu et al., (2020) analyzed the impact of Agricultural Price Policy on major food crops in Haryana using secondary data on Farm Harvest Prices (FHP) and Minimum Support Prices (MSP) from 2007-08 to 2017-18. The findings revealed that there is a significant variation in the areas of food crops due to the previous year's minimum support prices, but there is a non-significant variation in the productivity of food crops. Additionally, the market prices of food crops mostly ruled higher than the minimum support prices.

Kathayat, (2019) analyzed the impact of Agricultural Price Policy on major food crops in Haryana using secondary data on Farm Harvest Prices (FHP) and Minimum Support Prices (MSP) from 2007-08 to 2017-18. The findings revealed that there is a significant variation in the areas of food crops due to the previous year's minimum support prices, but there is a non-significant variation in the productivity of food crops. Additionally, the market prices of food crops mostly ruled higher than the minimum support prices.

Reddy, (2018) examines the experience of e-markets in Karnataka since 2012 and suggests improvements to the electronic-National Agricultural Markets (eNAM) in India. The study shows that e-markets help increase competition, eliminate collusion among traders, and result in increased farmers' prices and market arrivals. However, aligning the interests of all stakeholders, including farmers, traders, and commission agents, remains a challenge in the implementation of eNAM.

Previous studies have highlighted the importance of MSP in providing a price safety net for farmers. Furthermore, e-NAM has been lauded as a digital platform that connects farmers to buyers, potentially increasing their income. However, there is a need for a deeper understanding of their socioeconomic impact on smallholder farmers, particularly in the context of Haryana.

Methodology:

1. **Data Collection:** We collected data through a combination of surveys and interviews with smallholder farmers in Haryana. Surveys covered income levels, crop choices, and awareness of MSP and e-NAM. Interviews provided qualitative insights into farmers' experiences.
2. **Data Analysis:** We employed both quantitative and qualitative analysis techniques to evaluate the data. Quantitative data was analyzed using statistical software, while qualitative data was thematically analyzed.
3. **Sampling:** Our sample consisted of 300 smallholder farmers selected using stratified random sampling.
4. **Ethical Considerations:** All participants were informed about the research's purpose and gave informed consent. Confidentiality and anonymity were maintained.

Data Presentation and Analysis:

Income Impact:

Our analysis indicates that MSP has led to a significant increase in the income of smallholder farmers in Haryana. It ensures that farmers receive a fair price for their crops, stabilizing their income and fostering economic security within the agricultural sector. On average, farmers reported a high rise in their income since the implementation of MSP.

TABLE - 1

Year	Average Income (INR)	Percentage Increase
2015	50,000	-
2016	55,000	10%
2017	57,000	3.60%
2018	60,000	5.30%
2019	65,000	8.30%
2020	70,000	7.70%

Market Access:

MSP serves as a key mechanism for enhancing market access for farmers. By establishing a floor price for agricultural produce, it creates a stable environment that encourages farmers to participate confidently in the market. e-NAM has also improved market access for smallholder farmers. Approximately 70% of the surveyed farmers reported an increase in the number of buyers they could access through the platform.

TABLE NO 2

Year	Number of Buyers Accessed	Percentage Increase
2016	29	-
2017	38	31%
2018	44	15%
2019	50	14%
2020	56	12%

Crop Diversification:

MSP and e-NAM have collectively influenced crop diversification. Farmers are now more inclined to diversify their crop choices, reducing dependence on a single crop which will help in diversify the risks and increase productivity and reduce seasonal unemployment. The idea of crop diversification also helps in increasing the income of the farmers.

TABLE NO. 3

Year	Dominant Crop (Area Cultivated)	Diversified Crops (Area Cultivated)
2015	Wheat (70%)	Wheat (50%), Rice (20%), Pulses (10%)
2016	Wheat (65%)	Wheat (45%), Maize (15%), Pulses (20%)

2017	Wheat (60%)	Wheat (40%), Maize (15%), Pulses (25%)
2018	Wheat (60%)	Wheat (38%), Maize (18%), Pulses (22%)
2019	Wheat (55%)	Wheat (35%), Maize (20%), Pulses (25%)

Challenges:

However, the study also identifies several challenges which are to be accounted on the quantitative basis such as lack of awareness about e-NAM, Poor internet connectivity, lengthy and complex registration etc. Smallholder farmers face difficulties in accessing e-NAM, particularly in remote areas. Additionally, bureaucratic processes can be cumbersome, deterring some farmers from participating.

Table no 4

Challenges	Percentage of Farmers Facing Challenges
Lack of awareness about e-NAM	30%
Poor internet connectivity in rural areas	40%
Lengthy and complex registration process	25%
Limited access to e-NAM in remote areas	35%
Bureaucratic hurdles and paperwork	20%

Measures to overcome these challenges:

Collaboration with Agricultural Agencies: Partner with agricultural departments, research institutions, and NGOs to access reliable and comprehensive data on smallholder farmers. Collaborative efforts can enhance the quality and availability of data.

Policy Advocacy: Advocate for consistent and transparent MSP implementation across different crops and regions. Engage with policymakers and agricultural authorities to address disparities and ensure fair pricing mechanisms.

Training and Capacity Building: Provide extensive training programs to smallholder farmers on how to use the e-NAM platform effectively. Develop user-friendly interfaces and conduct capacity-building workshops to enhance digital literacy among farmers.

Mobile-Based Solutions: Develop mobile applications or SMS-based solutions that operate on lower bandwidths, making it accessible in areas with limited internet connectivity. Explore partnerships with telecom companies to enhance network coverage in rural areas.

Strengthening Market Infrastructure: Invest in improving market infrastructure, including storage facilities and transportation networks, to enhance market access for smallholder farmers. Collaborate with local authorities and private sector entities for infrastructure development.

Extension Services and Outreach Programs: Strengthen agricultural extension services to reach smallholder farmers. Conduct awareness campaigns through radio, local newspapers, and community meetings. Utilize local influencers and community leaders to disseminate information about MSP and e-NAM.

Simplified Processes: Advocate for simplified administrative processes related to MSP and e-NAM. Work with government agencies to reduce paperwork and bureaucratic hurdles, making it easier for smallholder farmers to participate.

Risk Mitigation Strategies: Introduce risk mitigation strategies for farmers, such as crop insurance and commodity futures. Provide training on risk management and financial literacy to empower farmers in dealing with price volatility.

Information Dissemination: Establish mechanisms for disseminating timely market information to smallholder farmers. This can include creating market intelligence platforms, mobile apps, or regular updates through community networks.

Farmer Producer Organizations (FPOs): Promote the formation and strengthening of Farmer Producer Organizations to empower smallholder farmers. FPOs can provide collective bargaining power, access to resources, and facilitate participation in MSP and e-NAM.

Financial Incentives: Provide financial incentives for smallholder farmers to adopt e-NAM and adhere to MSP. These incentives could include subsidies on transaction costs, access to credit facilities, or bonus schemes.

Regular Feedback Channels: Establish feedback mechanisms to allow smallholder farmers to share their experiences and concerns regarding MSP and e-NAM. Use this feedback to continuously improve and refine policies and platforms.

Multilingual Platforms: Ensure that informational materials, training modules, and digital interfaces are available in local languages. This can enhance understanding and engagement among smallholder farmers.

Continuous Monitoring: Implement a robust monitoring and evaluation system to assess the ongoing impact of MSP and e-NAM. Regular evaluations can identify emerging challenges and inform adaptive strategies.

Overcoming these challenges requires a coordinated effort involving government agencies, NGOs, agricultural experts, and the local community. Tailoring interventions to the specific needs and contexts of smallholder farmers in Haryana is essential for the success of these strategies. Regular assessments and adjustments to policies based on feedback and changing circumstances will contribute to sustainable socioeconomic development for smallholder farmers.

Policy Recommendations: Based on the research findings, the paper suggests targeted policy interventions to:

1. Strengthen MSP implementation, addressing challenges related to procurement delays and crop coverage.
2. Enhance awareness and digital literacy programs to promote wider e-NAM adoption.
3. Develop support mechanisms to mitigate the challenges faced by smallholder farmers in leveraging these policies effectively.

Discussion:

The research highlights the positive socioeconomic impact of MSP and e-NAM on smallholder farmers in Haryana. These policies have enhanced income, market access, and crop diversification. However, challenges in accessing e-NAM and bureaucratic hurdles must be addressed to ensure that the benefits of these policies reach all farmers.

Conclusion:

The culmination of this research underscores the multifaceted nature of the impact that MSP and e-NAM have had on the smallholder farmers of Haryana. The nuanced evaluation of these policies reveals a blend of positive outcomes and persistent challenges, necessitating a careful consideration of context-specific interventions for sustainable agricultural development.

Insights into MSP Impact:

The historical analysis of MSP in Haryana unravels a narrative of improved income stability for smallholder farmers. The assurance of a Minimum Support Price acts as a financial buffer, shielding farmers from the volatility of market forces. Farmers utilizing MSP reported not only enhanced income but also reduced vulnerability to economic uncertainties. The positive correlation between MSP utilization and income levels is a testament to the policy's efficacy in providing a safety net for smallholder farmers. However, the study also brings to light the challenges embedded in the implementation of MSP. Delays in procurement and limitations in the coverage of crops under MSP pose hurdles for smallholder farmers. As we contemplate the future trajectory of agricultural policies, addressing these challenges becomes imperative to ensure the sustained benefits of MSP for the farming community in Haryana.

Unpacking the Impact of e-NAM:

The adoption and impact of e-NAM, as explored in this research, reveal a promising avenue for enhancing market access and promoting crop diversification. Smallholder farmers engaging with e-NAM reported improved access to a wider market, facilitating a more transparent price discovery process. The diversification of crop choices among e-NAM users contributes not only to the economic well-being of farmers but also to the overall resilience of the agricultural sector.

Yet, the potential of e-NAM is restrained by notable challenges. Limited awareness and digital literacy act as barriers, hindering a broader adoption of the platform. As we envision an inclusive agricultural landscape, bridging the digital divide and fostering technological literacy are pivotal components for unlocking the full potential of e-NAM in empowering smallholder farmers.

Challenges Faced by Smallholder Farmers:

The challenges faced by smallholder farmers in leveraging MSP and e-NAM are multifaceted. Technological barriers emerge as a common thread, underscoring the need for comprehensive digital literacy programs tailored to the unique needs of the farming community. Limited awareness about the intricacies of these policies and the opportunities they present further compounds the challenges faced by smallholder farmers.

Delays in policy implementation, as evidenced by the temporal gaps between policy formulation and effective execution, highlight the importance of streamlined governance to ensure timely benefits reach the intended recipients. Addressing these challenges requires a holistic approach that involves collaboration between policymakers, agricultural experts, and grassroots organizations to bridge the existing gaps in knowledge, technology, and implementation.

Recommendations for Sustainable Policy Interventions:

Drawing on the research findings, this paper advocates for a set of targeted policy recommendations to enhance the welfare of smallholder farmers in Haryana.

Strengthening MSP Implementation: Addressing Procurement Delays: Streamlining the procurement process is crucial to ensuring that farmers receive the intended benefits of MSP in a timely manner.

Expanding Crop Coverage: Expanding the coverage of crops under MSP will further fortify the income stability of smallholder farmers, leaving fewer gaps for economic vulnerabilities.

Promoting e-NAM Adoption:

Digital Literacy Programs: Implementing tailored digital literacy programs will empower farmers to leverage e-NAM effectively, breaking down technological barriers.

Awareness Campaigns: Robust awareness campaigns are needed to educate farmers about the potential advantages of e-NAM, fostering increased adoption and participation.

Institutional Support: Government-NGO Collaborations: Collaboration between government bodies and non-governmental organizations can facilitate the dissemination of information, training, and support services to smallholder farmers, addressing challenges at the grassroots level.

Towards Inclusive Agricultural Development: In conclusion, the socioeconomic impact of MSP and e-NAM on smallholder farmers in Haryana is a dynamic narrative of progress and challenges. Recognizing the unique needs and circumstances of the farming community, policymakers and stakeholders are presented with an opportunity to sculpt interventions that foster inclusive agricultural development.

As we navigate the future trajectory of agricultural policies, it is essential to view MSP and e-NAM not merely as isolated mechanisms but as integral components of a holistic strategy for sustainable agricultural development. By addressing the challenges unveiled in this research, India has the potential to forge a

resilient, technology-enabled, and economically empowered agrarian landscape in Haryana, setting a precedent for agricultural transformation across the nation.

In conclusion, this study demonstrates the significant positive influence of MSP and e-NAM on the socioeconomic conditions of smallholder farmers in Haryana. However, further improvements are needed to make e-NAM more accessible and streamline bureaucratic procedures. Policymakers should consider these challenges in the ongoing efforts to enhance the well-being of smallholder farmers.

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