

The Agricultural Crisis in Punjab: A Behavioural Economics Perspective

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Punjab's agricultural crisis is a ticking time bomb that threatens the very foundations of the state's economy and the well-being of its people. As water tables plummet and soil fertility declines, the once-thriving breadbasket of India – Punjab – is now on the brink of an environmental and humanitarian disaster. An examination of Punjab's agricultural landscape reveals that behavioural economics can provide innovative solutions for a sustainable future. By understanding the psychological and social influences on farmers decisions, we can develop strategies that not only enhance productivity but also strengthen resilience in the face

of challenges.



Source : Financial Express

A multitude of issues

Punjab's agricultural sector is in the throes of a profound crisis, characterised by several interrelated challenges. Monoculture and soil degradation stand out, as a staggering 93% of cultivated land is devoted to food grains, leading to significant nutrient depletion and heightened soil salinity from excessive fertiliser application. Compounding this issue is water scarcity, with alarming groundwater depletion rates —some regions experience drops exceeding 1 metre annually, and over 80% of the area is classified as over-exploited.

The economic viability of farming is increasingly precarious;

the average income for a farming family is merely Rs 46 (\$0.93) per day, placing many below the poverty line and exacerbating debt burdens among small farmers.

Additionally, the excessive use of chemicals has resulted in serious health issues, with cancer rates in Punjab's Malwa region reaching 100-110 per 1,00,000 people, significantly higher than the national average. Finally, the spectre of climate change looms large, as severe weather events disrupt crop yields and threaten traditional farming practices through unpredictable rainfall patterns and rising temperatures.

Punjab's agricultural crisis is deeply rooted in a series of policy failures that have stifled innovation and sustainability. The government's long standing preference for wheat and rice has led to inadequate crop diversification, preventing farmers from adopting less water-intensive and potentially more profitable alternatives. Although the benefits of diversification are well-documented, initiatives aimed at promoting it have largely faltered. Compounding this issue is the misallocation of subsidies; substantial financial support—around Rs 6,000 crore (\$800 million) annually for electricity—has made the cultivation of these staple crops lucrative but has also resulted in significant environmental stress and fiscal burdens on the state. The recent cessation of these subsidies has left farmers vulnerable, as they now face the dual challenge of maintaining productivity without the

financial safety net they once relied on.

On a parallel scale, insufficient investment in agro-processing industries has hindered opportunities for better market access and reduced post-harvest losses. Currently, the food processing sector contributes only 1.34% to the state's GDP, falling short of the national average of 1.77%.

Adopting behavioural insights

Utilising behavioural economics in Punjab's agricultural sector is crucial for addressing the unique challenges faced by farmers. Traditional economic models often assume that farmers act purely as rational profit maximizers; however, this perspective overlooks the cognitive biases and emotional factors that significantly influence their decision-making. By aligning behavioural insights with current policies, we can create a more supportive environment that encourages farmers to adopt practices that lead to better economic and environmental outcomes.

To effectively address the potential challenges and limitations of implementing behavioural economics strategies in Punjab, a multifaceted approach grounded in evidence-based practices can be adopted. Firstly, establishing pilot programs with feedback loops is essential, allowing farmers to share their experiences and concerns

about new practices. This iterative process will refine strategies and enhance acceptance before wider rollout. Additionally, prioritising investments in infrastructure is crucial; by developing facilities that support sustainable practices, such as water conservation systems and storage units, we can equip farmers with the necessary tools to adopt these new methods confidently. Furthermore, comprehensive training programs should be developed to educate farmers not only on sustainable practices but also on how to adapt to changing agricultural conditions. These programs could encompass workshops, field demonstrations, and peer-to-peer learning opportunities to foster a collaborative learning environment. Lastly, implementing robust monitoring and evaluation frameworks will be vital to assess the effectiveness of behavioural nudges and other interventions. This approach will help identify unintended consequences and facilitate timely adjustments, ensuring that the strategies remain responsive and effective.

Comparative evidence

Initiatives like Haryana's "Mera Pani Meri Virasat" program have successfully incentivized farmers to shift from water-intensive crops like paddy to less demanding alternatives such as maize and soybean, resulting in a reduction of over 1

lakh hectares in paddy cultivation. This demonstrates the potential for policy-driven change that could be mirrored in Punjab.

Moreover, implementing default options for crop rotation could automatically enrol farmers in programs promoting diversification, significantly increasing participation.

Additionally, leveraging social norms and peer influence by showcasing successful local initiatives can motivate others to adopt similar practices.

Successful agricultural reforms in other countries, such as Brazil's, "Zero Hunger" program that employed behavioural nudges by integrating social programs with agricultural initiatives, encouraged farmers to adopt more diverse cropping methods; and the United States, "Conservation Reserve Program" that successfully incentivized farmers to adopt environmentally friendly practices through financial rewards, demonstrate the effectiveness of behavioural approaches in agriculture. Within India, the state of Andhra Pradesh has implemented the "Community Managed Natural Farming" program, which aims to transition 6 million farmers to chemical-free, climate-resilient agriculture by 2027. This program also uses behavioural nudges such as peer-to-peer learning, community-based monitoring, and incentives to encourage farmers to adopt sustainable practices.

Recounting the benefits

Implementing behavioural nudges in Punjab's agricultural policies presents a transformative opportunity for both cost savings and enhanced benefits for farmers. By investing in education and training focused on sustainable practices, farmers can achieve higher yields and lower input costs over time. For instance, research by Feder et al. (2004) indicates that farmer field schools, which provide hands-on training, can increase yields by 17% while reducing pesticide use by 35%. Additionally, improving access to markets through better infrastructure for agro-processing can empower farmers to negotiate fair prices for diverse crops, reducing their dependency on government procurement. A study by Trebbin and Hassler (2012) found that membership in agricultural cooperatives can increase farmers incomes by 20%.

Promoting water conservation techniques, such as drip irrigation and rainwater harvesting, can further help farmers save water and reduce costs associated with groundwater extraction. Research by Narayanamoorthy (2010) shows that drip irrigation can enhance water use efficiency by 50-90% compared to conventional methods. Moreover, encouraging sustainable practices not only benefits the environment but also leads to improved health outcomes for farmers and their

communities. Mader et al. (2002) found that organic farming reduces pesticide exposure and improves health, resulting in a 15% increase in productivity.

A clarion call

By harnessing the principles of behavioural economics, policymakers have the opportunity to guide farmers toward sustainable agricultural practices that not only bolster productivity but also enhance the resilience of the agricultural sector. This is not just an agricultural imperative; it is a moral obligation to safeguard the livelihoods of those who feed the nation and to protect the environment for generations to come. Empowered farmers will be able to adopt diverse cropping patterns, conserve precious water resources, and reduce their reliance on harmful chemicals. This transition is not merely beneficial for individual farmers; it will significantly improve the health and well-being of farming communities, contributing to broader goals of food security and environmental protection.

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