Major Policies which Increase Millet Consumption

Abstract

Millets are sustainable alternatives to ensure food and nutrition security. Millets consumption exhibited a decline from 2011-12 but recovered in 2023-24 after declaration of International years of millets. This study examines the share of millets consumption across the states and all-over India at various points from 1960-2022. It also examines the trends of consumption expenditure on millets and recommends some policies that can be undertaken by the government to increase its consumption.

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Acknowledgement

We offer our sincere thanks and gratitude to Delhi College of Arts and Commerce for giving us the very valuable opportunity to work on the term paper “Major policies which increase the consumption of millets”. We would like to express our deep gratitude to our Teacher, Ms. Jyoti Jyotsana for her patient guidance, encouragement and valuable critiques throughout the duration of this project. This project offered a great learning experience. During the tenure of this project, we were fortunate to have interacted with people who, in their capacities, have encouraged and guided us.

Finally, we would like to thank our parents and friends who kept us motivated and helped us finish the project in the limited time frame.

Introduction

Millets are dubbed as a group of small seeded grains which are cultivated in India due to its high adaptability to harsh conditions, low input requirements and high nutrition value. Regardless of its traditional significance in Indian Agriculture alongside ensuring food and nutritional security, the cultivation and use of Millets have taken a back seat over the years and are declining at an overstated rate. This is majorly due to the Green Revolution focus on paddy rice and wheat which changed the lines of production, market competition, and consumer choices and led to a scope wide neglect of Millets in policies, infrastructure, and market systems.

Now, there is an increased amount of focus being put on the advantages of millets, most striking being health and sustainability of the environment. Their high fiber content makes them rich in dietary essentials, multifunctional nutrients consisting of iron, calcium, magnesium, and coupled with low glycemic index. Millets

serve best in the prevention and treatment of non-communicable diseases like obesity, cardiovascular disorders, and diabetes. In the context of climate, and because of low resource demand, their drought resistance places them as a primary choice for crops that assist with sustainable agriculture and climate change adaptation strategies.

In recent years, recognizing their enormous benefits, the Government of India has introduced various policies to augment the production and consumption of millets, the latest among which is the announcement of the year 2022–23 as the international year of millets in the budget speech by Union Finance Minister, Ms. Nirmala Sitharaman on 1-2-2022. There are hardly any studies that have comprehensively assessed the status of production and consumption of different millets and their demand–supply gap in India, although studies are available for coarse cereals as a whole. This study may help provide the roadmap for policymakers and researchers in framing suitable medium- and long-term strategies to reduce the demand–supply gap of various millets under consideration, such as Bajra, Jowar, Ragi and Small Millets.

This study examines the key factors that influence millet consumption in India, with a focus on both supply- and demand-side dynamics. It explores patterns in consumption using rural and urban data, state-wise variations, and household-level monthly consumption expenditures. These dimensions help to understand the socio-economic and geographic disparities that shape millet use across different population groups. Furthermore, the research evaluates existing policy interventions and provides recommendations aimed at improving access, affordability, and awareness related to millet consumption.

Literary Review

Sukumaran Sreekala et al.(2023), and P. Anbukani et al. (2017) talked about the consumption pattern of millets indicating a decline in per capita consumption in both urban and rural households from 1977–78 to 2011–12. Factors such as longer cooking times, difficulty in preparation and lack of value added products have contributed to the reduction in consumption of millets along with insufficient domestic storage, poor marketing facilities, inadequate processing techniques and lower availability of grains. Policies favouring rice and wheat through the Public Distribution System (PDS) have historically had an adverse impact on coarse cereal demand.[1] To promote millet production and consumption, the Government of India has introduced policies, including declaring 2022–23 as the International Year of Millets. Programs like NFSM and INSIMP have also been initiated to increase

the area under millet cultivation and promote their consumption. The National Food Security Bill (NFSB) has also included millets in the subsidized food grain basket.[2]

M. Uma Gowri*(2020) and K.M. Shivakumar(2021) provided key insights into the declining production and area under cultivation of millets. Moreover, comprehensive cost analysis which suggested higher cost of millets compared to the major cereals i.e. rice and wheat. Kane-Potaka et al. shed light upon urban consumption patterns and adoption barriers. Through extensive market surveys, the research identified that 68% of urban consumers cited taste unfamiliarity as their main issue to millet adoption. The study demonstrated how developing convenient, ready-to-eat millet products could increase urban consumption by 55%, with school meal programs showing particularly promising 72% acceptance rates among children. Findings also revealed a significant generational knowledge gap, with only 12% of urban millennials able to identify common millet varieties, underscoring the need for targeted awareness campaigns.

Anitha et al. (2021) and Saleh et al. (2013) contributed by analyzing several clinical studies and stating the evidence of impacts on health of millets. Diabetic Patients were seen with 12-15% better glycemic control and decrease in LDL cholesterol by regular millet consumption. Iron-deficiency anemia recovered 200% rapidly and obesity reduced by 8-10% in patients of millets consuming community. The above highlights shows that millets should be included into nutritional programs for health benefits in Asia and Africa, specifically as a way to counter increasing lifestyle diseases epidemics.

Ekta et Sarita (2016) stated that malnutrition is a concern in our genetics, the main reason being lack of awareness of nutrition composition. High nutrition foods are not consumed, sometimes because of taste preferences. Millets are gluten free cereal, this single factor can cure many problems like obesity, digestion, dizziness. Alkalinity maintains healthy pH balance in the body, promoting optimal health. Finger millets control blood glucose level in diabetic rats. Magnesium reduces the effects of migraine and heart attack and antinutrients reduce risk of colon and breast cancer in animals. Guillaume Gruere et al.(2008), researched on marketing of underutilized minor millets. It was explained with taking an example of Kolli tribe of Tamil Nadu in which Self Help Groups were made for financing small loans and men engaged in dehusking and processing. Then

value added goods were sold in markets. It was found that collective action and targeted policies increase the consumption of minor millets.The MSSRF's initiatives, including SHG promotion, value addition, and demand expansion strategies, demonstrate a multi-faceted approach to market development for underutilized crops. However, the authors acknowledge that external factors, such as subsidized alternatives and changing consumer preferences, pose ongoing challenges to the sustained commercialization of millets.

Dr. P. Stanly Joseph Michaelraj & A. Shanmugam (2024) and B. Dayakar Rao et al. (2024) have highlighted certain supplementary strategies to strengthen and further boost millet production and consumption in the country. Michaelraj & Shanmugam have stressed about the ecological and the nutritional value of millets in contrast with cereals and advocated for millet's inclusion in welfare schemes like ICDS, PDS and MDM. B. Dayakar Rao et al. (2024) has focused on creating demand so as to bring millets into the consumption patterns of the people as a modern and nutritious staple. Both of these studies have underlined the role of a millet-driven consumption pattern through a set of targeted policies.

Data Source

We used the Household Consumption Expenditure Survey drawn from the National Sample Survey conducted in 2009-10, 2011-12, 2022-23, 2023-24. It contained information on per capita monthly consumption expenditure of various food and non-food items in quantity and value terms. The data on millet exports and per capita consumption of millets were compiled from Indian Institute of Millets Research. Excel was used to analyse and interpret the data.

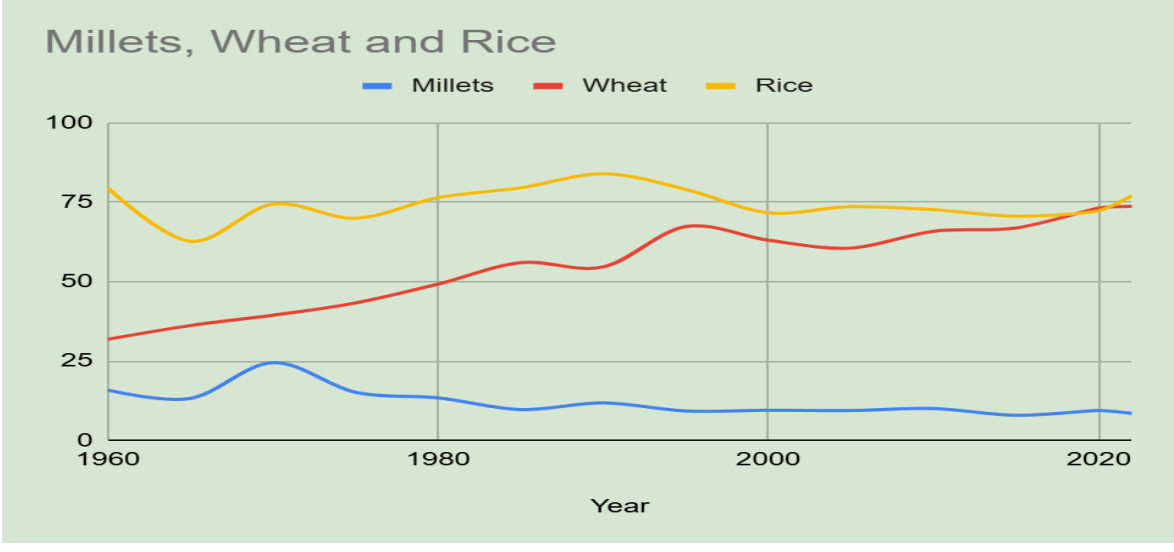
Discussion & Result

Monthly per capita consumption pattern of Millets and Cereals(wheat, rice and others) as a share of total per capita cereal consumption compiled from unit level NSSO data extracted from the 79th round on 'Household Consumer Expenditure' for urban, rural and all India has been given in the Table 1.

Table 1	Rural					Urban				
States	monthly per capita cereal consumption (kg)	% share in total per capita cereal consumption (qty) of				monthly per capita cereal consumption (kg)	% share in total per capita cereal consumption (qty) of			
		rice	wheat	millets	other cereals		rice	wheat	millets	other cereals
Andhra Pradesh	9.1	91.78	5.8	2.33	0.1	8.28	90.32	7.7	1.87	0.1
Assam	8.96	95.34	4.63	0.01	0.01	8.58	91.72	8.26	0.01	0.01
Bihar	10.46	52.43	47.31	0.25	0.02	10.3	51.35	48.48	0.17	0.01
Chhattisgarh	10.84	91.42	8.49	0.06	0.03	10.18	80.8	19.15	0.01	0.04
Gujarat	8.03	27.45	55.93	16.07	0.54	7.4	28.34	65.27	6.04	0.34
Haryana	8.36	7.6	86.97	5.32	0.12	7.26	13.82	83.98	2.12	0.08
Jharkhand	9.85	67.99	31.84	0.15	0.02	9.5	58.16	41.79	0.03	0.01
Karnataka	8.11	64.29	13.98	21.12	0.59	7.38	66.11	18.39	15.08	0.42
Kerala	6.76	87.29	12.38	0.13	0.21	6.65	86.91	12.68	0.27	0.15
Madhya Pradesh	9.19	27.01	70.98	1.9	0.12	8.53	23.59	76.04	0.21	0.15
Maharashtra	8.34	35.72	51.49	12.42	0.37	7.45	41.63	52.84	5.31	0.23
Odissa	11.5	90.71	8.59	0.6	0.1	10.02	81.78	18.06	0.12	0.03
Punjab	7.55	9.33	89.85	0.65	0.17	7.35	13.59	86.07	Thi0.2	0.14
Rajasthan	10.33	3.75	82.8	12.93	0.52	9.62	6.4	91.17	2.21	0.21
Tamil Nadu	7.66	90.52	7.15	2.25	0.09	7.23	89.5	9.37	1.01	0.14
Telangana	10.18	91.35	6.02	2.55	0.07	8.67	87.02	11.1	1.73	0.16
Uttar Pradesh	9.07	37.61	61.83	0.5	0.07	8.1	31.58	67.86	0.44	0.1
West Bengal	10.45	81.21	18.77	0.01	0.01	8.87	73.78	26.21	0	0
All-India	9.35	54.16	41.92	3.77	0.15	8.02	52.27	45.15	2.44	0.15

In both rural and urban context, Karnataka has the highest consumption percentage of millets in respect to total cereals consumed. The Karnataka Government actively promotes millets using the public distribution system and school meal programs. Gujarat, Maharashtra and Rajasthan also show high consumption percentage of millets. This is due to the dry arid regions of these states which are favourable for the cultivation of millets. Whereas Assam has the lowest percentage share in total per capita cereal consumption in both rural and urban at around 0.01%. Chhattisgarh, Bihar, West Bengal, Orissa, Tamil Nadu, Jharkhand also have a very low share of millets in per capita cereal consumption because of the regions' close proximity to fertile river basins and heavy rainfall which in turn is beneficial for paddy cultivation and consumption. Because of the aforementioned reasons , rice and wheat have cemented their place as the staple crop of these regions and are now a big part of the consumption patterns of the locals. Western UP, Punjab, and Haryana portray a huge disparity between their share of rice and wheat as compared to that of millets. This is due to the success of the policies of the Green Revolution and a good network of canals which gave a huge boost to rice and wheat production in these states.

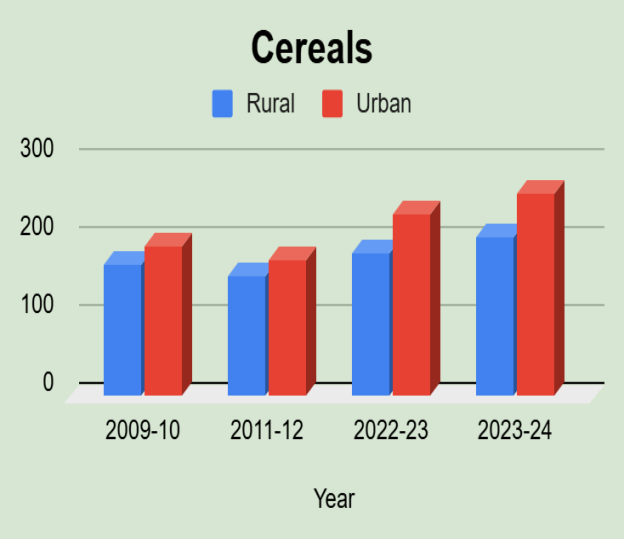
Per capita consumption of millets, wheat and rice, India during 1960 - 2022 (kg/ capita/year			
Year	Millets	Wheat	Rice
1960	15.89	31.88	79.54
1965	13.26	36.22	62.73
1970	24.52	39.47	74.46
1975	15.17	43.31	70
1980	13.43	49.26	76.49
1985	9.74	56.03	79.57
1990	11.86	54.68	83.97
1995	9.3	67.39	79.11
2000	9.53	63.06	71.72
2005	9.44	60.61	73.69
2010	10.08	65.91	72.7
2015	7.94	66.94	70.64
2020	9.45	73.2	72.38
2022	8.54	73.74	77.09



The consumption pattern of millets in the later sixties and seventies saw a sharp increase owing due to the fact that the country was facing a severe food crisis in the aftermath of the Indo-China War of 1962 , Indo-Pakistan war of 1965 and 1971, monsoon failures and droughts. India was forced to rely on costly but poor quality foodgrain imports from the U.S. This made people turn to millets for the staple consumption, but this change was short-lived. As the wheat and rice production boomed under the Green revolution in the 1970s, consumption demand again turned back to Wheat and Rice.
Consumption of millets has roughly remained constant since the 1980s and there has been a steep increase in consumption of wheat due to decline in cultivated area under millets and the effects of green revolution which increased the productivity of wheat, further lowering its prices.

Trends in Consumption Expenditure since 2009-10

Table 3	Cereals		Millets	
Year	Rural	Urban	Rural	Urban
2009-10	169.7298	191.5508	0.7428	0.9436
2011-12	152.867	173.843	0.858	1.315
2022-23	184.4997	233.8158	0.7546	1.2918
2023-24	204.8634	261.6504	0.8244	1.3992



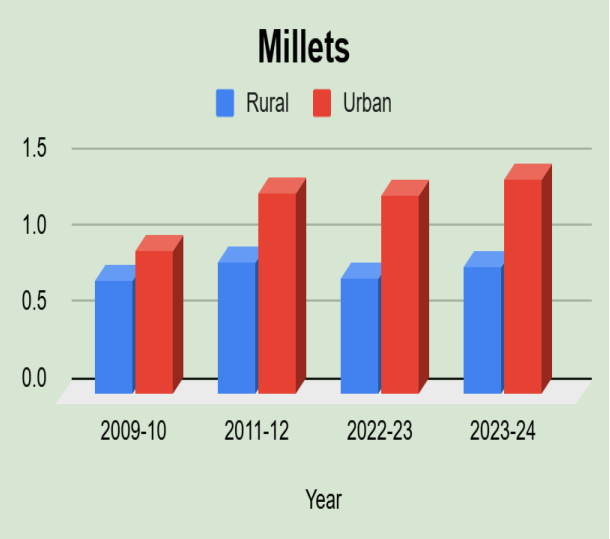
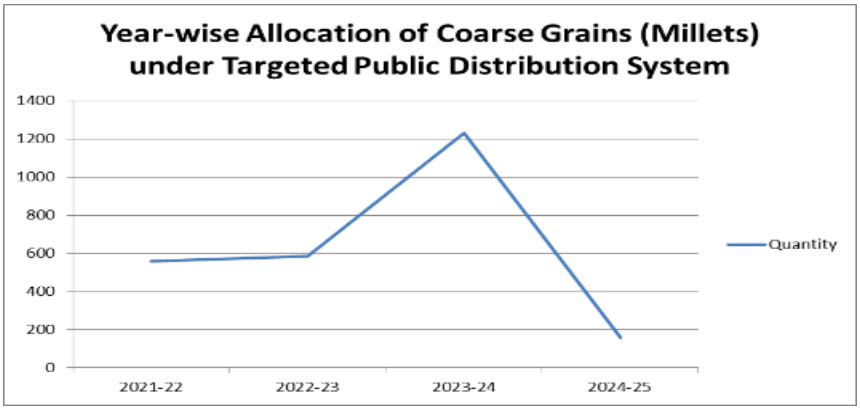


Table 4	Growth rate trends of consumption expenditure since 2009-10					
	Rural			Urban		
Item	2011-12	2022-23	2023-24	2011-12	2022-23	2023-24
Cereal	-9.94%	20.69%*	11.04%	-9.24%	34.49%*	11.90%
Millets	15.51%	-12.05%*	9.25%	39.36%	-1.76%*	8.31%
***Average growth rate over a long period (2011-12 to 2022-23)**						

The average monthly per capita consumption expenditure on millets increased during 2011-12 by nearly 15.5% and 39.3% in rural and urban households respectively but decreased in subsequent years till 2022-23. There is marginal decline in consumption expenditure on millets in urban areas probably due to increased awareness about nutritional level of millets as compared to rural areas. The United Nations' initiative of declaring 2023 as the International Year of Millets to raise awareness about millets, Sub-mission on Nutri-cereals and the integration of millets into PDS by Government of India along with private sector involvement probably led to such large increase in expenditure on millets during 2023-24 in both rural and urban areas.



*(**Data Figures for 2024-25 are Provisional)*

(Source : Open Government Dataset)

Trend in percentage composition of MPCE since 2009-10

Table 5	Cereals		Millets	
Year	Rural	Urban	Rural	Urban
2009-10	13.71	8.12	0.06	0.04
2011-12	10.69	6.61	0.06	0.05
2022-23	4.89	3.62	0.02	0.02
2023-24	4.97	3.74	0.02	0.02

Year	Average MPCE	
	Rural	Urban
2009-10	1238	2359
2011-12	1430	2630
2022-23	3773	6459
2023-24	4122	6996

The monthly per-capita consumption expenditure on cereals and millets both have shown a decline in both rural and urban context. This can be attributed to :

1. Increase in incomes of people where now people spend their income on a diverse basket of consumer goods including food items other than cereals and millets.
2. Changing dietary preferences due to rapid information exchange and urbanisation.
3. Better infrastructural network allowing the markets to cater to a diverse demand and thus reduce the dependence on cereals and millets.

Conclusion

Millets can play a pivotal role in addressing challenges of the Indian food system, which majorly include nutritional deficiencies.They are also environmentally sustainable as they can be grown in arid and water deficient regions and are climate resilient. Millets were a culprit of policy biasness of the Government towards rice and wheat especially after the Green Revolution, inadequate market infrastructure and shifts in urban consumption patterns, which have now started to reverse due to awareness about nutritional benefits that millets hold.

Despite the underutilization and neglect of millets, recent reports, research, policy changes and initiatives from the grassroot level have hinted towards a renewed interest towards them. A multidimensional approach is required to promote value chains and startup ecosystems based on millets by integrating them into public nutrition programs like ICDS, PDS and promote awareness among the public regarding their health and nutritional benefits. With the optimal mix of agricultural techniques and policies, millets can be the core of a sustainable and comprehensive development.

Nowadays, demand for millets for household consumption is assumed to be on a rise due to increased awareness regarding the health benefits of millets and their availability as a “ready to eat” product.

Policy Recommendations

1) **Boosting efficiency of millet production**

    - This should be undertaken by provision of HYV seeds and implements.
    - Government should provide required subsidies and benefits to the farmers who undertake millet cultivation, making millet production more incentivising and attractive.
    - States wherever the efficiency of millet production is lowest should be supported as a priority.

2) **Inclusion of millets in the Public Distribution System**

    - The government should actively participate in the procurement of millets through the system of PDS so that millets remain available and affordable to the consumers.
    - If the government demonstrates a positive leaning towards millets, even the supply side of the millet economy would be benefitted and thus ensure greater production for the ever growing population and demand.
    - Targeted distribution of millets through the Public Distribution System should be undertaken so as to meet the staple demand of the region and also to tackle prevalent deficiencies of nutrients if need persists.

3) **Adequate resource allotment towards Research & Development**

- Under this, the government should promote as well as support research on millets, so that better varieties are developed which have higher yields and nutritional value, and stronger resistance against pests.

- As more research would be undertaken, we would observe better quality millet products which would have a bigger shelf life as compared to the former varieties.

4) **Technology Advancement**

- Encourage GI tagging of indigenous millets through satellite networks and develop regional millet branding campaigns.

- This step adds market value and promotes region-specific consumption with pride.

5) **Massive awareness campaigns via radio, TV, social media**

- Highlight millets as the *"smart food"* for urban wellness, sustainability, and tradition.

- Promote regional millet-based dishes as heritage pride — like *jowar bhakri* in Maharashtra or *bajra khichdi* in Rajasthan.

6) **Mandating Millets in Government Institutions**

- Making a percentage of millet based items mandatory in Mid-day meals, government office canteens , army rations, IRCTC food, government hospitals, universities and Anganwadi nutrition programs would increase demand and visibility of millets at systematic levels.

- It would normalize millet consumption across various sections of society, promoting healthier eating habits, increasing the overall millet consumption.

7) **Public-Private Partnerships (PPP)**

- Work with FMCG brands, retail chains, startups to co-create millet products to provide consumers with more attractive and healthier ready-to-eat millet products.

- Support startups and MSMEs in millet-based product development through schemes like **Startup India** and **PMFME** to attract urban consumers, who move towards lucrative styles of living.

- Launch a **"Millet Innovation Challenge"** for entrepreneurs.

References

1. Sukumaran Sreekala, A. D., Anbukkani, P., Singh, A., Dayakar Rao, B., & Jha, G. K. (2023). Millet production and consumption in India: where do we stand and where do we go?. *National Academy Science Letters*, *46*(1), 65-70.
2. Anbukkani, P., Balaji, S. J., & Nithyashree, M. L. (2017). Production and consumption of minor millets in India-A structural break analysis. *Ann. Agric. Res. Ne Series*, *38*(4), 1-8.
3. Gowri, M. U., & Shivakumar, K. M. (2020). Millet scenario in India. *Economic Affairs*, *65*(3), 363-370.
4. Kane-Potaka, J., Anitha, S., Tsusaka, T. W., Botha, R., Budumuru, M., Upadhyay, S., ... & Nedumaran, S. (2021). Assessing millets and sorghum consumption behavior in urban India: A large-scale survey. *Frontiers in sustainable food systems*, *5*, 680777.
5. Anitha, S., Botha, R., Kane-Potaka, J., Givens, D. I., Rajendran, A., Tsusaka, T. W., & Bhandari, R. K. (2021). Can millet consumption help manage hyperlipidemia and obesity?: a systematic review and meta-analysis. *Frontiers in Nutrition*, *8*, 700778.
6. Saleh, A. S., Zhang, Q., Chen, J., & Shen, Q. (2013). Millet grains: nutritional quality, processing, and potential health benefits. *Comprehensive reviews in food science and food safety*, *12*(3), 281-295.
7. Sarita, E. S., & Singh, E. (2016). Potential of millets: nutrients composition and health benefits. *Journal of Scientific and Innovative Research*, *5*(2), 46-50.
8. Gruère, G., Nagarajan, L., & King, E. O. (2009). The role of collective action in the marketing of underutilized plant species: Lessons from a case study on minor millets in South India. *Food Policy*, *34*(1), 39-45.
9. Dayakar Rao, B., Bhat, V., Niranjan, T., Sujatha, M., & Tonapi, V. A. (2021). Demand creation measures and value chain model on millets in India. *Millets and millet technology*, 381-411.
10. Michaelraj, P. S. J., & Shanmugam, A. (2013). A study on millets based cultivation and consumption in India. *International Journal of Marketing, Financial Services & Management Research*, *2*(4), 49-58.

CONTRIBUTION

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Discussion and Results - Rashtra and Parth
Conclusion - Rashtra and Parth
Policy Recommendations - Rashtra and Parth
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