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Consumption of Rainfed Crops in Rural India

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Introduction

Rainfed agriculture in India continues to account for a major share of the cultivated area in India, at around 56 per cent (Suresh et al, 2014[1]). India ranks first in the world both in area under rainfed agriculture and value of produce from rainfed agriculture (Rao et al, 2015[2]). It contributes substantially towards production of food grains such as coarse cereals (87%), pulses (85%), oilseeds (72%) and cotton (65%) (Rao et al, 2015). This data brief presents a temporal spatial study of consumption of some of the major rainfed crops in India. While consumption of food is strongly linked with individual and regional tastes and preferences, it is useful to look at how the trends have changed or stayed constant over the years.

This brief includes two prime groups of rainfed crops consumed in India: coarse cereals and pulses. Further, it looks at jowar, bajra and maize among coarse cereals and tur and gram in pulses. Data on consumption for these crops is taken from Household Consumer Expenditure (HCE) by National Sample Survey (NSS). While this study lacks a continuous time series, it spans a decade from 1999-2000 to 2011-12 that are 55th, 61st, 66th and 68th round of NSS. HCE records consumption of approximately 150 food items consumed in the last 30 days for households in rural and urban India. The trends presented here pertain to rural India. Sample size for the four years are, 67,541, 75,130, 56,485 and 57,514 rural households respectively. NSS also records information on the source of the food items consumed that are specified as markets, home grown, both market and home grown, PDS, free collection, gifts/charities, exchange and others. This brief uses the source codes to look at consumption of rainfed crops from market and own production. However, there are two main limitations with using this dataset. First, the source code *others* records consumption from a combination of sources listed exclusively that makes it difficult to identify households that are consuming from both markets and own production. This drops those households from the sample that might be consuming partially from markets and partially from own production. Second, there might be a section of households that grow these crops for both sale in market and own consumption.

This dataset does not provide any information on the quantities sold in the market so consumption from own production cannot be understood as total production of these grains by a particular household.

Table – 1: Percentage of households in rural

Crops	1999-00	2004-05	2009-10	2011-12
Jowar	9.72	10.15	10.15	8.75
Bajra	6.62	7.56	7.56	6.84
Maize	7.29	8.48	8.48	6.82
Tur	55.99	60.11	60.11	62.4
Gram	38.01	43.91	43.91	52.74

Note: Analytical weights used to generate population estimates.

[1] *A, Suresh et al (2014). Rainfed agriculture in India: An analysis of performance and implications*

[2] *Ch, Srinivasrao & et al (2015), Potential and Challenges of Rainfed Farming in India.*

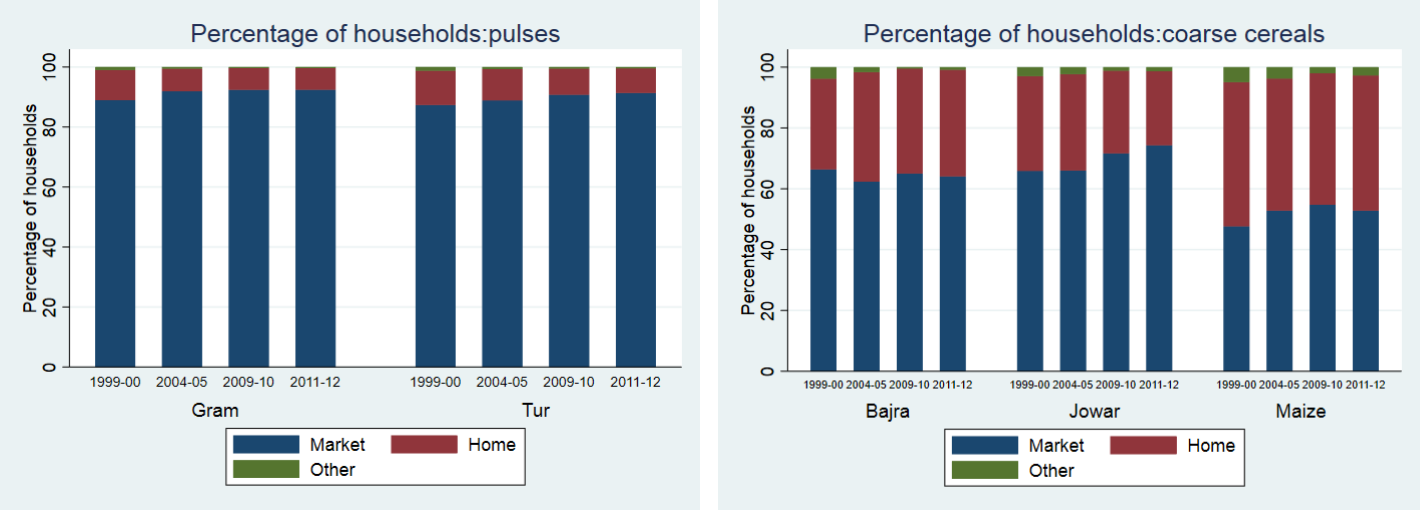

Figure 1: Source wise consumption of crops in rural India

As presented by Table 1, households in rural India mostly consume jowar among coarse cereals and tur among pulses.

Figure 1 shows that tur and gram are mostly consumed from market and very little consumption from own production is reported. In case of coarse cereals, approximately half of the households consume maize from their own production and 30-40 percent of households consume home-produced jowar and bajra.

Table 2: State wise consumption of rainfed crops (Coarse cereals)

States	Jowar				Bajra				Maize			
Rainfed	***1999-00***	***2004-05***	***2009-10***	***2011-12***	***1999-00***	***2004-05***	***2009-10***	***2011-12***	***1999-00***	***2004-05***	***2009-10***	***2011-12***
Andhra Pradesh	***13.43***	***16.46***	***14.82***	***15.85***	1.42	1.51	*	*	1.00	*	1.84	*
Karnataka	***46.83***	***45.89***	***45.39***	***47.52***	2.34	3.34	*	2.72	3.01	2.24	*	1.54
Madhya Pradesh	6.84	***13.49***	8.22	3.74	1.42	2.04	2.13	1.91	***14.82***	***22.9***	***16.25***	***15.19***
Maharashtra	***55.41***	***57.44***	***62.6***	***53.06***	***19.71***	***23.84***	***19.97***	***22.02***	1.51	0.99	1.4	1.31
Rajasthan	*	*	*	*	***25.82***	***34.51***	***27.53***	***33.56***	***21.6***	***21.59***	***19.67***	***15.08***
Irrigated												
Haryana	*	*	*	*	***12.09***	***15.61***	***9.11***	***11.93***	2.87	4.13	2.47	1.79
Punjab	*	*	1.24	*	1.17	*	*	*	***15.3***	***20.13***	***13.2***	***18.08***
Uttar Pradesh	1.15	1.21	*	*	2.49	4.07	3.84	2.66	3.93	7.47	3	2.91
National	**9.72**	**10.15**	**9.7**	**8.75**	**6.62**	**7.56**	**6.67**	**6.84**	**7.29**	**8.48**	**6.51**	**6.82**

Note: Analytical weights used to generate population estimates. Stars represent less than one percent households. Highlighted numbers show percentage above national.

Table 3: State wise consumption of rainfed crops (Pulses)

States	Tur				Gram			
Rainfed	***1999-00***	***2004-05***	***2009-10***	***2011-12***	***1999-00***	***2004-05***	***2009-10***	***2011-12***
Andhra Pradesh	***95.98***	***98.27***	***98.47***	***99.31***	33.36	***46.99***	***39.53***	45.55
Karnataka	***94.56***	***97.99***	***98.29***	***99.29***	***56.81***	***70.43***	***79.97***	***77.41***
Madhya Pradesh	***61.52***	***81.31***	***76.84***	***84.21***	30.19	***45.72***	***55.36***	***53.36***
Maharashtra	***93.44***	***94.5***	***92.82***	***97.92***	***62.63***	***68.95***	***69.77***	***69.02***
Rajasthan	7.53	9.61	13.62	18.98	***70.21***	***56.14***	***77.78***	***76.75***
Irrigated								
Haryana	8.23	8.02	7.9	18.17	***89.06***	***85.76***	***93***	***92.67***
Punjab	4.47	6.82	6.45	4.66	***91.54***	***93.48***	***95.45***	***97.77***
Uttar Pradesh	***67.56***	***77.07***	***65.86***	***76.43***	24.22	***28.49***	39.87	36.85
National	**55.99**	**60.11**	**57.1**	**62.4**	**38.01**	**43.91**	**51.63**	**52.74**

Note: Analytical weights used to generate population estimates. Highlighted numbers show percentage above national.

Figure 2: Consumption by sources (coarse cereals)

Figure 3: Consumption by sources (pulses)

Five states viz. Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra and Rajasthan where the majority of area under cultivation is rainfed (Kerr et al, 1996[3]) are chosen to present the state level estimates. Additionally, Haryana, Punjab and Uttar Pradesh are included as irrigated states (Kerr et al, 1996) to provide a comparative picture. As can be seen, the

[3] *Kerr, J. M., and et al (1996(. Sustainable development of rainfed agriculture in India.*

consumption of coarse cereals is mostly recorded in the states of Maharashtra, Karnataka and Rajasthan with negligible percentage of households reporting consumption from Punjab, Haryana and Uttar Pradesh as opposed to consumption of pulses that is consumed across both the rainfed and irrigated states.

At the state level, a significant percentage of households report consumption of home-produced coarse cereals. Approximately 50 percent of households in Karnataka, Madhya Pradesh and Rajasthan consume bajra from own production. Similarly, a high percentage of households report home-produced consumption of maize in Karnataka, Madhya Pradesh, Maharashtra and Rajasthan.

This is in contrast with pulses wherein majority of households consume market bought gram and tur. Most of the pulse consumption is recorded from markets with home production contributing very little. A small percentage of households in rainfed states of Maharashtra and Rajasthan report home produced consumption of gram and tur. However, households in rainfed states like Punjab and Haryana consume from markets.

The quinquennial thick rounds of NSS from the 61st round have big enough sample size of households in both rural and urban India and the sampling design allow s to get district level representative estimates in case of most states. However, district level representation requires some amount of caution. The maps presented here reports consumption of home-produced maize and tur. As can be seen, only a handful of districts record a significant percentage of households consuming maize and tur from own production

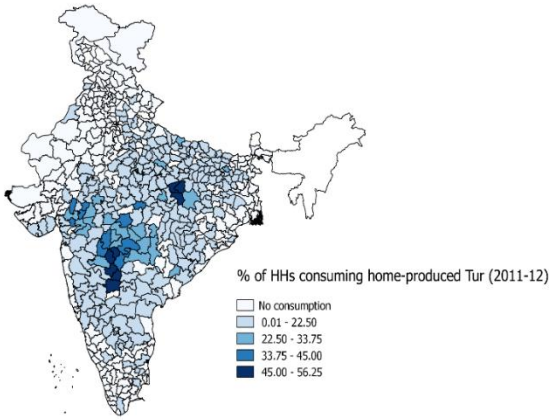

Figure 4: District wise consumption of home-produced maize (2011-12) (excluding north-eastern states)

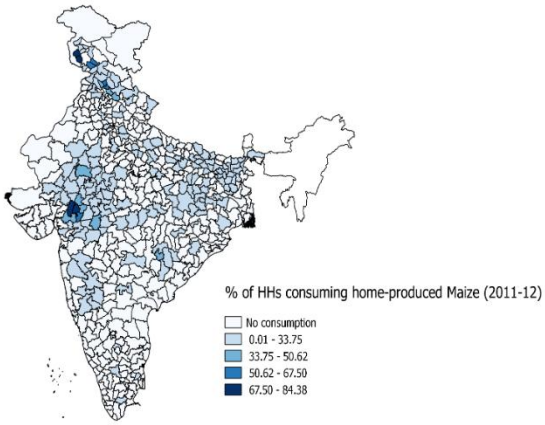

Figure 5: District wise consumption for home produced Tur (2011-12) (excluding north-eastern states)

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Estimates presented in this brief suggest that majority of households consume market bought pulses. In case of coarse cereals, a significant percentage of households report consumption of home-produced grains. However, temporal patterns suggest that home consumption especially for coarse cereals is declining over the years even in the rainfed states. This also seems to be true for states such as Uttar Pradesh and Maharashtra[4] that report consumption of home-produced pulses.

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[4] *Venkateswarlu, B., and et al (2012). Carrying capacity of Indian agriculture: issues related to rainfed agriculture*