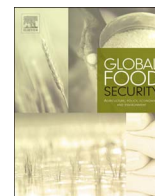


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The bumpy road from food to nutrition security – Slow evolution of India's food policy

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ABSTRACT

Food Policy, in much of Asia, has been slow to transition from its historic focus on staple grain self-sufficiency to a more integrated approach to nutrition security. Research and policy discussions continue to focus on hunger and calorie deficiency rather than on the need for a balanced diets to address chronic micronutrient malnutrition and the emerging problems of over weight and obesity. Social welfare schemes aimed at improving nutrition also focus on ensuring calorie sufficiency, neglecting quality and diversity of diets and behavioral change towards better nutrition. This paper provides a detailed review of the evolution of food policy in India and a way forward in the transition towards nutrition security.

1. Introduction

Despite increases in agricultural productivity and overall food production, high levels of undernutrition in its multiple forms continue to persist across the developing world. Effectiveness of agricultural policies for improved nutritional outcomes in a particular country, depends on the importance of agriculture in the overall economy, specific nutritional challenges in the country and the stage of structural transformation (Pingali et al., 2015). Countries in the Asia have used modernization of agricultural systems as a pathway for income growth and structural transformation of the economy. The Green Revolution (GR) led to greater production of staple food crops – rice and wheat - and kick started economic growth in much of Asia (Pingali, 2012). However, the strategy of promoting staple crop productivity inadvertently resulted in the crowding out of traditional micronutrient-rich food crops, such as coarse grains, millets and pulses from areas in which they were historically grown (Pingali, 2012; Pingali and Sunder, 2017).

While the historic success of staple grain productivity growth resulted in ensuring adequate quantities of staple food, such as rice and wheat, and in defeating the specter of famine and hunger in Asia, micronutrient malnutrition continues to persist. There is a growing disconnect, common across the developing world but particularly glaring in India, between food policy and contemporary nutritional challenges. Food Policy continues to be focused on calorie availability and has been slow to respond to the persistent problem of micronutrient malnutrition and child stunting, as well as, the emerging challenges of

overweight and obesity (Gómez et al., 2013; Meenakshi, 2016).

India's food policy attempts to ensure that agriculture is remunerative and farm prices are stable through assured minimum support prices (MSP) to farmers while at the same time ensuring subsidized food access for poor consumers through the Public Distribution System (PDS). Decoupling the government's consumer welfare objectives from producer protection objectives lies at the heart of food policy reforms that are urgently needed in India. The twin objectives of a remunerative farm price and low consumer prices have considerable political economy ramifications. Open ended procurement at the MSP has led to the creation of a “farmer lobby” mainly in the higher producing states of Punjab and Haryana.¹ This lobby has been successful in garnering significant influence in policy making in the name of promoting the “peasant cause” (Krishnaji, 1990). Ramaswami and Murugkar (2015) argue that the government has always taken a “play it safe” stand in such matters given the electoral influence of the farm lobby. Critics of food and agricultural policies have argued that as long as the “in-kind” food transfer program through PDS remains in place, procurement and MSP has to continue for its support (Kotwal, 2011). However, moving away from the current sub-optimal system towards a more efficient system, such as cash based transfers, is also beset with the same set of problems in terms of mode of transfer, identifying the beneficiaries and the preferences of the targeted population (Khera, 2014).

Although this paper focuses on India, the evolution of food policy from its current staple grain focus to one that addresses the broader

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¹ Open ended procurement means the government is committed to purchasing any amount of grain through its procurement operations at the announced MSP.

concerns of nutrition security is a challenge faced across Asia. The next section of the paper argues that Indian food policy has been slow to make the transition from a focus on food grain self-sufficiency to one of promoting a nutritionally balanced food system. Part of the reason for the slowness is that the paradigm of food security is still based on hunger alleviation through the provision of a staple food and calorie rich diet. Policy fixation with staple grains has put a limit to the ability of agriculture to diversify into other crops in response to growing market demand. The transition from a staple grains based food policy has also been constrained by political economy factors discussed above. Even programs that had health and education objectives, such as the Integrated Child Development Scheme (ICDS) and the Mid-Day Meal Scheme (MDMS) have morphed into conduits for the provision of subsidized grain. Hence the “bumpy road” in the evolution to a policy that focuses on improved nutrition outcomes. The third section of the paper presents a detailed set of steps necessary for transitioning from the current food policy to one that promotes nutrition security. Concluding remarks are provided in the final section.

2. Food Policy evolution: from national self-sufficiency to improved individual access

Food Policy in India has been centered on calorie consumption as the primary means of achieving food security. Prior to 1970's, staple food availability and price stability were major concerns which led to an emphasis on self-sufficiency in food grain production. Large scale productivity gains and self-sufficiency in food grain production through the Green Revolution (GR) subsequently led to a shift in focus towards ensuring food access at the household level (Radhakrishna, 2005). To achieve this policy objective, procurement of food grains from farmers at assured Minimum Support Prices (MSP) and their distribution at subsidized prices to poor consumers through the Public Distribution System (PDS) have been the operational tools. Over time a symbiotic relationship evolved between food grain producers, especially in high productive areas, such as Punjab and Haryana, the parastatals responsible for grain procurement and poor consumers who benefitted from the access to subsidized grain. However, this nexus has also been the cause of much of the policy failures in shifting the focus from staple grain sufficiency to promoting a food system that provides balanced nutrition. In fact, Ganesh-Kumar et al. (2007) have said that the policy of food grain self-sufficiency as a means of achieving food security has “outlived its usefulness”.

2.1. The Green Revolution strategy of staple grain self sufficiency

In the early years after independence, India was a food deficient country with frequent droughts and famines. Though India was primarily an agrarian economy at that time, agricultural productivity was low and food grains (rice, wheat, millets, maize and barely) contributed to 75% of the total cropped area (Chakravarti, 1973). In 1966-67, high yielding varieties of rice and wheat were introduced in India together with massive public investment in agricultural research and development. Improved GR seed varieties, along with investments in irrigation, promotion of fertilizers and pesticides led to massive gains in agricultural productivity (Janaiah et al., 2005; Pingali, 2012). Annual per-capita availability of food grains increased from around 140 kg, in 1950s to more than 160 kg, in the 2000s (Fig. 1). However, the GR crowded out the production of other nutrient-rich food crops such as coarse cereals and pulses, from their traditional production environments (Kataki, 2002; Pingali et al., 2015). This was particularly true in the Indo-Gangetic plains which account for over 12 million hectares of intensively cultivated land commonly referred to as the “food bowl of India”. Punjab and Haryana which constitute a bulk of the staple crop production zone, contribute around 84% and 54% of the total wheat and rice in the country (Singh and Sidhu, 2014).

The GR not only benefited producers through rise in production, but

also led to a decline in food prices for consumers. Technological advancement, food self-sufficiency and rising income through the GR ushered India and other countries in Asia onto a path of agricultural modernization and structural transformation (Hazell et al., 1991; Pingali, 2012). Rising income also led to a greater demand for non-staples such as vegetables, fish and meat as the consumption of staples comes down in accordance with the Bennis's law. This is evident in India as empirical studies suggest a dietary transition with consumption demand moving away from staple crops towards a more diversified and higher quality diet (Pingali, 2006).

While there was a secular decline in the price, as well as, seasonal variation in the price of staple grain crops, the relative price levels of other nutritious food, such as pulses, fruit and vegetables have not come down commensurately (Rahman, 2012). The staple grain supply approach through GR did lead to an increase in calorie availability, but diversity in the food system suffered (Headey et al., 2012; Thow et al., 2016). High relative price differences between staples and non-staples impeded the extent of diet diversification, especially for the poor. For example, the increasing price of legumes has been associated with a consequent decline in pulse consumption across all income groups (Kataki, 2002). Hence, while the GR was very successful in addressing calorie sufficiency, it failed to address micronutrient malnutrition, the problem of “hidden hunger” and dietary quality.

Despite the relative high price differentials, the supply responsiveness has been low for non-staple crops and livestock products. Fig. 1 shows the temporal decline in the per capita availability of coarse cereals and pulses. The persistence of GR era policies targeted towards staple grains hampers farmer incentives for the diversification of food production systems. Poorly developed markets for non-staples is also an important reason for the lower growth in their supply (Pingali, 2015). While government parastatals have focused on the procurement of staples, non-staple food supply depends largely on private sector investments in the agricultural markets and value chains, which continue to be low. Creating a “level policy playing field” that corrects the historical bias in favor of staple crops would improve incentives for diversification of production into non-staple foods. That however continues to be THE challenge facing India's food policy.

2.2. Addressing food access through the Public Distribution Scheme (PDS)

With achievement of self-sufficiency in staple food crops at the national level, policy orientation moved towards ensuring food access at the household level (Radhakrishna, 2006). Public Distribution System (PDS), Integrated Child Development Scheme (ICDS) and the Mid-Day Meal Scheme (MDMS) are the three main pillars of the food based assistance programs in the country. According to an estimate by Narayanan and Gerber (2015), the central government's allocations to the ICDS, MDMS, PDS and Mahatma Gandhi National Employment Guarantee Act (MGNREGA) constitutes to about 1.7% of the Gross Domestic Product (GDP).² Collectively, the total budgetary allocations in terms of proportions are quite small when compared to other low and middle income countries.

Under the PDS, rice, wheat, sugar and kerosene are provided to the consumers through a chain of Fair Price Shops (FPS) in the country. Although in most states the focus is primarily on staple grain access. Staple grains procured by the Food Corporation of India (FCI) from farmers in high productive environments, such as Punjab, are distributed through PDS outlets known as the Fair Price Shops (FPS) across the country. The PDS was considered a failure in terms of its coverage and escalating fiscal costs (Jha and Ramaswami, 2010; Ramaswami, 2002).

² We are not discussing MGNREGA here because that is an employment program. Though MGNREGA has potential impact on nutrition, we chose to ignore this for the present study since we are focusing on food based assistance schemes in this paper. For details, please refer to Narayanan and Gerber (2015).

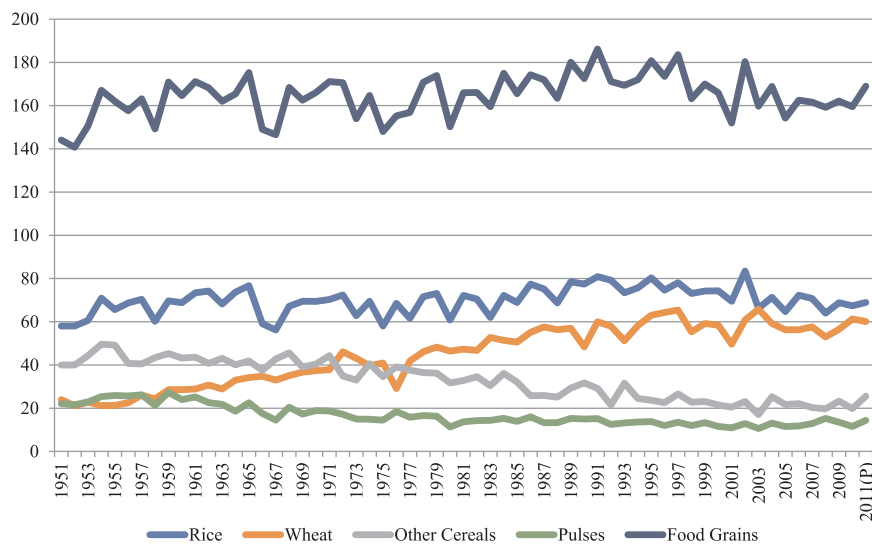


Fig. 1. Annual per-capita availability of food grains (in kgs.).

However, since 2005 there has been a revival of PDS with expansion in coverage and reduction in leakages and targeting errors (Dreze and Khera, 2015; , 2011b) famously referred to as “new style PDS” by Dreze and Sen (2013).

PDS initially started as an urban food security program for the industrial towns during the World War II. It expanded into rural areas, particularly in states with staple grain deficits as green revolution production surpluses emerged in the 1970s (Mooij, 1998). Much of the expansion in PDS was aimed at supporting rice and wheat growing farmers through procurement at assured prices, benefiting the politically important *kulak* lobby comprising of farmers from the major rice-wheat producing regions of the country (Ashok Mitra, 1977; Tyagi, 1979; Varshney, 1998). Recent improvements in the PDS came about through increased state government involvement in program management, greater participation by stakeholders and citizens, and through greater information availability that allowed for increased transparency in running PDS operations (Sekher et al., 2017).³ The state governments also realized the importance of popular programs in gaining electoral strength and hence put in extra effort in ensuring better reach and performance of PDS (, 2011b). States which are performing better on the PDS, are those which have been more inclusive in terms of the targeted population for the scheme.⁴ Strong political support from the farm lobby in the high productive states, combined with populist support in the deficit states, ensures that the PDS will not be dismantled anytime soon.

Where it has been successful, the PDS has helped to ensure that the problem of hunger is limited, but its nutritional impacts are unclear. Studies which focused on the period before the recent PDS revival find that PDS did not have an impact on overall calorie intake (Kaushal and Muchomba, 2015; Kochar, 2005). In contrast, some recent evaluations of PDS find that expanded coverage of PDS not only increased calorie intake, but also improved dietary diversity through income effects (Kaul, 2013; Kishore and Chakrabarti, 2015; Krishnamurthy et al., 2014; Rahman, 2016). However, other studies raise concerns about the impact of the PDS on diet quality, especially the micro-nutrient composition of the diet. For example, (Khera, 2011a) finds that households substitute away from more nutritionally superior coarse cereals

³ For a detailed discussion on PDS reforms and the improvements in the system, interested readers can refer to (Khera, 2011b; Ramaswami and Murugkar, 2015; Sekher et al., 2017).

⁴ For example, the leading states Tamil Nadu and Himachal Pradesh have universal PDS coverage while other better performing states like Odisha and Chhattisgarh have had a massive overhaul in extending the benefits of PDS to a larger rural population.

towards subsidized wheat from PDS. Similarly, Desai and Vanneman (2014) find that access to PDS increases the availability of cereals, but has no effect on the consumption of other micro-nutrient rich foods. PDS through its focus on the staple crop continues to emphasize calorie adequacy rather than ensuring access to balanced diets for the poor. Prospects for further reforms to the PDS in order to make it more nutrition sensitive will be discussed later in the paper.

2.3. Women and child health and education programs morph into calorie supply schemes

Together with PDS which was aimed at controlling the prevalence of hunger, the other two major food based assistance programs have been the Integrated Child Development Scheme (ICDS) and the Mid-Day Meal Scheme (MDMS). ICDS was launched in 1975 to provide balanced nutrition for children under six years of age and for pregnant and lactating mothers.⁵ However, mid-term appraisal of the Government of India's 11th 5-year Plan (2007–2012) raised serious questions on the effectiveness of ICDS in reducing child nutrition despite being in place for 34 years (Balarajan and Reich, 2016). MDMS was introduced in 1995 as a “National Program for Nutritional Support for Primary Education” and was renamed later. It aimed to address *classroom hunger* for school-going children between the age of 6–14. We argue here that similar to PDS, the ICDS and MDMS were also merely staple grain based safety nets which benefited from the procurement of staples through the parastatals and did not allow the food provisions to vary much by local tastes, preferences and adequate nutritional requirements. Hence, they did little to address the problem of malnutrition through improved access to a more balanced diet. Although more recent reforms seem to be moving the programs more explicitly towards nutrition outcomes, such as reductions in maternal malnutrition, and child stunting.

ICDS was launched as an experiment for integrated nutrition for children under six years of age and for pregnant and lactating mothers. Lack of food was assumed to be the major driver of malnutrition and hence, ICDS was merely focused on providing food supplementation for children from 6 months to 6 years old, in addition to some take home rations for pregnant and lactating women. It was only in the late 2000s that a group of researchers and advocates of nutrition came together to form a coalition and made a unified call for a more integrated and multi-faceted approach to nutrition (Balarajan and Reich 2016). MDMS, on the other hand, provided an opportunity for increased rates of school

⁵ ICDS is implemented through community blocks where *anganwadis* (child care centers) act as focal points in the delivery of these services.

enrollment and attendance with potential enhancements in their learning outcomes by reducing “classroom hunger” (Dreze and Goyal, 2003; Khera, 2004). Under the scheme, 300 cal and 8–12 g of protein were to be provided to all children every day. MDMS suffers from lack of adequate infrastructure, sufficient staff, nutritive quality of the food, smooth and timely payments, accountability mechanisms, especially in the poorer performing states like Bihar and Rajasthan (Khera, 2013).

Though MDMS was launched in 1995, it came to be implemented across all the states of India only in 2001, when the Supreme Court made it mandatory for states to provide “cooked meals” to all primary school children. Similarly, major changes in the ICDS were brought about through the advocacies by “Right to Food” group and active involvement of the Supreme Court. It led to an increase in the number of *anganwadis*, especially in the underserved areas, supplementary nutrition through ICDS was made universal from a targeted one, almost fourfold increase in the budgets between 2004 and 2008 and a policy directive to provide hot cooked meals (Biswas and Verma, 2009). Since then, ICDS has expanded on a large scale and covered almost 67% of the total children under the age of 6 years across India in 2013.⁶

We have a limited understanding on whether these food assistance programs resulted in improved nutrition (Pingali and Rao, 2017). Studies looking at ICDS before 2000s, found that it was ineffective with regressive program placements (Lokshin et al., 2005). Banik (2016) claims that the focusing solely on staple crops as food assistance through ICDS has been one of the major reasons why ICDS had no effect on malnutrition. In subsequent years, however, ICDS has had an appreciable effect on reducing malnutrition, especially the girl child (Jain, 2015).

While there is a large body of work which shows that MDMS has led to an increase in school enrollment and attendance rates (Afridi, 2011; Bonds, 2012; Drèze and Kingdon, 2001; Jayaraman and Simroth, 2015), there is little empirical work on the role of MDMS in improving nutritional outcomes. Afridi (2010) finds that daily nutrient intake of children increases substantially if they participate in the MDMS. Singh et al. (2014) show that MDMS acts as a safety net for children and compensates them for early life droughts faced through an improvement in their nutritional outcomes as measured through weight by age or height by age. Using surveys in some of the villages of East India, Mittal and Meenakshi (2015) find 11% points and 6% points decline in the prevalence of underweight children who benefited from ICDS.

2.4. National Food Security Act, 2013 – does it move beyond calorie sufficiency?

2013 was a watershed moment in India's food policy with the National Food Security Act (NFSA) being passed in the parliament. NFSA provides legal entitlement to 75% of the rural and 50% of the urban population to receive a minimum of 5 kg. of foodgrains every month at highly subsidized prices.⁷ NFSA also has provisions for nutritional support to pregnant women and lactating mothers who are entitled to receive meals during pregnancy and up to six months after the child birth for free and associated maternity benefit of not less than Rs. 6000. Further, NFSA mandates nutritional support to children in the age group of 6 months to fourteen years, free of cost. PDS is expected to be the nodal channel for implementing the NFSA which would expand its coverage by approximately 15–20 million from the current 884 million beneficiaries. NFSA's focus on staple grains and its reliance on outdated calorie norms without much focus on micronutrient consumption and diet diversity makes it unlikely that it will successfully address the problem of “hidden malnutrition” (de Brauw

and Suryanarayana, 2015).

NFSA aims to create an umbrella under which the various food assistance schemes would work in synergy to improve food and nutritional security through a life-cycle approach. However, these schemes seem to be working in silos without much coordination to date. The NFSA has not been able to break from the traditional farm lobby and populist political control of food policy and hence the prospects for it to successfully address nutrition security beyond calorie sufficiency are limited.

3. Redesigning food policy for nutrition security

This section presents the main components of a policy redesign in order to move from a traditional focus on staple grain self sufficiency to addressing a broader set of nutrition objectives. A nutrition security policy agenda improves the affordability and access to a diet that is balanced in terms of energy, protein, micronutrient and vitamin rich food. A nutrition security policy focuses on the persistent problem of micronutrient malnutrition and child stunting, as well as, the emerging challenges of overweight and obesity. While this section stresses the need for a policy that promotes a balanced and nutritious food system, we don't mean to underplay the continued importance of investing in staple grain productivity. The key is to move away from the current almost “exclusive” focus on staples towards a more broad based and balanced food system.

3.1. Need to look beyond calories

Despite a clear understanding in the nutrition and public health community that absence of hunger does not mean better nutrition, policy debates and political discourse continue to use hunger and undernutrition interchangeably with malnutrition. This has led to a sustained push towards the provision of subsidized staple cereals (which are calorie rich) in the PDS and other safety net programs. Though NFSA provides a window of opportunity to change the narrative by allowing for the introduction millets and pulses in the PDS, however its supply side implications together with the budgetary requirements need careful thinking. Against a declining trend in the consumption of calories and changing dietary practices across the entire population distribution, it is not hard to argue that a focus on calories alone is a misplaced one. Millets are rich source of micro-nutrients like minerals and B-complex vitamins (Gavaravarapu and Nair, 2014), while pulses are a relatively cheaper source of protein (Roy et al., 2016). From the farmer's perspective, small millets are more resilient to climate variability than most crops (DeFries et al., 2016). Consumption of these nutrient rich items needs to be promoted given high levels of micronutrient deficiency in the country. In a pioneering effort, the Chhattisgarh State government introduced its own version of the food security act even before the NFSA. It included the provisions for pulses and iodized salt in addition to rice and wheat which are usually provided under the PDS.

3.2. Life cycle approach to nutrition

Problems of malnutrition such as wasting and stunting set in early in life even during pregnancy, and could persist through the life of an individual. Hence, nutrition policy needs to take a life-cycle approach (Rai et al., 2014). Key interventions in early stages of the life cycle such as nutritional supplements for women during their adolescence, pregnancy and lactation together with early childhood nutrition interventions for children could play a major role in reducing overall malnutrition. While the ICDS was designed with a life cycle approach, it operationally evolved into a food safety net program. Similarly, the NFSA purports to promote a life cycle approach but programmatic elements for making it one seem to be lacking (Rai et al., 2014). Better access to family planning, greater women's role in household decision

⁶ <http://pib.nic.in/newsite/PrintRelease.aspx?relid=101788>.

⁷ Under the Act, eligible households will be entitled to food grain at the subsidized price not exceeding Rs. 3 (or USD 0.05) per of rice, Rs. 2 per (or USD 0.03) kg of wheat and Re. 1 (or USD 0.02) per kg of coarse grain like millets (Government of India, 2013).

making, improved child care and nutrition practices, access to clean water and improved sanitation, and a more nutritious food system that is affordable to the poor are all essential components of a life cycle approach to improved nutrition. While the NFSA has these aspects covered, policy focus and the ensuing debate seems to miss this nuance.

3.3. 3.3 Renewed focus on agriculture with an emphasis on diversification towards more nutritious crops and livestock products

One of the critical challenges for agricultural policy is to correct the historical bias that incentivizes only rice and wheat production and discourages diversification into other high value crops. Pingali (2015) calls for a “crop-neutral” agricultural policy, one that creates a level playing field which allows farmers to respond to market signals, rather than a policy that is biased towards a particular set of crops. Diversification of production is useful not only for overall food production but in reducing poverty as well (Birthal et al., 2015). Promoting a “crop-neutral” policy with adequate market infrastructure, credit facilities and input availability would go a long way in allowing smallholder farmers to respond to the greater demand for non-staples. Promotion of nutritious crops through kitchen gardens and through the diversification of production system towards fruits and vegetables, livestock and aquaculture could lead to improved nutrition outcomes (Pandey et al., 2016).

3.4. Connect smallholders to value chains for horticulture & livestock products

Enhancing farmers’ ability to diversify production systems would require high levels of public and private sector investment in transportation, storage, and market development. Investments are also required to reduce transactions costs for smallholder integration into non-staple food markets. Diversifying diets to include protein and micronutrient-rich food could provide new opportunities for agriculture-led growth for smallholder farmers. Diversification of crops has been found to have a positive impact on reduction in poverty as well as dietary diversity (Birthal et al., 2015; Priya et al., 2012). Public policies aimed at creating an “enabling environment” that includes institutions that encourage private sector investment lead to new market opportunities for farmers and thereby promote diversification (Qureshi et al., 2015). Market development investments include both connective infrastructure (paved roads, telecommunication networks, distribution networks) and mediating infrastructure (credit sources, credit rating agencies, property titles, and other legal and regulatory institutions that can depersonalize exchange transactions and make assets fungible). Moreover, policies that succeed in creating such an enabling environment for agriculture may improve equity by including those among the rural poor who are less likely to have access to nonfarm employment, such as women farmers, and landless labor in non-staple food markets and distribution chains (Joshi et al., 2004). Finally, policy investments in market information technologies, product standardization, and food safety regulations can build consumer trust, identify new market demands, and provide meaningful opportunities for farmer response.

3.5. Focus on agricultural growth in Eastern India

Success of the NFSA relies on increased food production in backward regions of the country (Saxena, 2012). Punjab and Haryana benefited from the initial wave of green revolution in the 1970s and 1980s, and the affluence seen in these regions today can be partially attributed to the same. However, these states may be reaching an ecological carrying capacity for further productivity gains. A recent report by The Commission for Agricultural Costs and Prices (CACP) states that the traditionally rice-wheat growing regions require much more water than the eastern states.⁸ It is time for agricultural policy to re-orient its focus towards productivity gains in the Eastern part of the

country which has higher levels of rainfall. Recent initiative such as the *Bringing Green Revolution of Eastern India* (BGREI) would help upgrade agriculture in these states.⁹

The *Report of the High Level Committee on Reorienting the Role and Restructuring of Food Corporation of India* proposes a move towards the eastern states (Uttar Pradesh, Bihar, West Bengal, and Assam) for much of the procurement under MSP (Kumar, 2015).¹⁰ It is expected that procurement from these states would help induce agriculture lead growth in this traditionally lagging region of the country. However, there is a caveat that the eastern states neither have surplus foodgrain production, nor do they have favorable adequate access to input and credit, which are essential for rapid productive gains (Banerjee, 2011). BGREI scheme has succeeded to some extent in improving rice productivity in Odisha as shown by Haldar and Gopalan (2017), however, given current technologies, the competitiveness of these states with the GR states in terms of enhancing staple grain production is not clear. They could however become competitive with respect to non-staples, such as pulses and coarse cereals.

3.6. In-kind food program or a cash transfer scheme?

One of the most polarizing policy debates in India during the last two decades has been on whether PDS should move from an *in-kind* food transfer program to a cash based one of an equivalent amount. The call for a move to cash based transfers is on account of inefficiencies in the PDS and the burgeoning cost of food subsidy through procurement of rice and wheat from farmers.¹¹ As we discussed earlier, there is some evidence that recent improvements in the PDS have led to a more diversified diet as households are using the increase in consumer price subsidy on staples to purchase non-cereal food products. However, Balasubramanian (2015) argues that in-kind subsidy is no different from a cash transfer scheme as the marginal propensity to consume cereals out of PDS subsidy is almost zero. In terms of elasticity, Kaul (2013) also finds that calorie elasticity with respect to PDS subsidy is much smaller at 0.14, compared to 0.4 for overall calorie-expenditure elasticity. These results could potentially make a case for cash transfers to replace the existing in-kind PDS as households can have greater freedom to purchase the kind of food they would like. However, it has also been argued that replacing food with cash could potentially lead to wasteful spending on intoxicants such as alcohol undermining household-level food security. Gangopadhyay et al. (2015) have tried to counter argue this line of reasoning. Using a randomised controlled trial

⁸ Punjab requires about 5337l of water from irrigation to produce one kg of rice. As opposed to this, the irrigation requirement is just 2605l for every kg of rice in West Bengal. The report further suggests that paddy farmers in Assam, Bihar and Odisha — besides Karnataka and Andhra Pradesh — are also more water-efficient relative to their Punjab and Haryana counterparts.

⁹ Assam, Bihar, Chhattisgarh, Jharkhand, Odisha, eastern Uttar Pradesh and West Bengal were a part of BGREI which was initiated in 2011–12. In 2014–15 an allocation of USD 200 million was made for work in 121 out of the 183 districts in these states with the clear objective of technology upgradation in wheat and rice, improvements in assets and market linkages. In 2014–15 an allocation of USD 200 million was made for work in 121 out of the 183 districts in these states with the clear objective of technology upgradation in wheat and rice, improvements in assets and market linkages.

¹⁰ With respect to procurement, Punjab, Haryana and Andhra Pradesh contributed to 68.35%, 50% and 71% of their rice production to the PDS program in 2011–12. Procurement from the other rice producing states such as West Bengal for the same year was only 12.5% of its total production. As grain procurement from West Bengal came down, a collateral damage has been closing down of a large number of rice mills in the state leading to loss of jobs. The skewed nature of grain procurement underscores our point of focusing on the eastern India for food.

¹¹ PDS is one of the most expensive social support program in India with close to 1% of the country’s GDP being spent on the same. Back of the envelope calculations suggest that only 30% of the food subsidy gets transferred to the people. The rest comprises of the costs of illegal diversions of foodgrains (43%) operational costs (28%) (Kotwal and Ramaswami, 2014). For a detailed discussion on costs of PDS with NFSA being in place now, readers can refer to Chakrabarti, Kishore, & Roy (2016); Mishra (2013) and Sinha (2013).

in Delhi, they show that cash transfers in place of in-kind food subsidy do not affect food security. [Khera \(2014\)](#) contributes to the *cash vs. food* debate, by arguing that the “one-size-fits-all” approach may not work. Local context such as the state of economic and social development needs to be taken into account while taking sides in this debate. Using a survey of over 1200 rural households in nine Indian states, she argues that in societies with high levels of poverty, poorly developed credit and factor and product markets, paternalism as a cultural norm, and widespread inequality, cash may not ensure the kind of protection which food transfers do for a household to maintain their food security. She finds that in regions where the PDS is well functioning, people preferred food over cash.

Also, the argument that supply of staple grains through PDS has no effect on overall grains consumption needs more scrutiny. [Rahman \(2015\)](#) estimates the degree of substitution between rice from PDS and the open market for Tamil Nadu where PDS entitlements are universal and rice is provided for free upto a certain quota. He finds that an increase in the overall household consumption of rice on account of PDS consumption. This suggests that households not only use the income gain to purchase other food items but also rice from the open market. Hence, PDS subsidy may not be perfectly equivalent to an income transfer. Hence, while the jury is still out on whether India has the wherewithal to move towards a cash transfer based program, it is to be expected that the politically important “farm lobby” would contest such a move given their vested interests in the continuance of the procurement based system.

3.7. Introduction of pulses, millets and fortified crops in the PDS

While the debate on having PDS or replacing it with cash needs to be had, there is no denying the fact that nutritive quality of food provided through the PDS system could be greatly enhanced through expanding its scope to supply coarse grains and pulses. States like Karnataka and Tamil Nadu are already providing millets through PDS. The central government can also learn from initiatives by the various state governments. For example, Chhattisgarh also provides iodized salt, black gram and pulses to the poorer households in addition to mandatory grains. Similarly, Uttarakhand plans to introduce pulses as part of the PDS. Subsidized pulses can help diversify diets and enhance protein consumption. However, the feasibility of expanding the PDS to include pulses will depend upon the procurement and a remunerative MSP for these crops. MSP of millets and pulses are generally low compared to their market prices ([Banerjee, 2011](#)). Moreover, building from scratch a procurement “value chain” for non-staples requires significant amount of physical, financial and organizational capital. Also, coarse grains and pulses have not benefited from the R&D investments that have gone into enhancing the productivity of rice and wheat. Resources needed for reducing this R&D gap would be quite substantial.

Harvest Plus¹² has been working to bio-fortify pearl millet (with iron and zinc) and rice and wheat (with zinc) in India, and a substantial amount of work has already been done to develop lines.¹³ Food fortification (for primary, secondary and tertiary level processed items) could be done with select micronutrients like iron, folic acid, vitamin A, Vitamin B12 etc. The Food Safety and Standards Authority of India (FSSAI) have already issued necessary guidelines for wheat flour, oil,

¹² Harvest Plus is an initiative of the Consultative Group for International Agricultural Research (CGIAR) Micronutrients Project with the aim of reducing hidden hunger through the provision of adequate micronutrients to through the staple foods.

¹³ One of the pearl millet lines with twice the amount of iron as the common varieties, ICTP-8203, was released in 2011-12 and is now being grown by about 50,000 farmers in select pockets in Maharashtra. Because ICTP was an open pollinated variety and as such had low yields, high iron hybrids were released in 2014. Similarly, six lines of wheat high in zinc have been released and advance trials and seed development is being carried out in several locations in north India. Work on rice is in progress and the lines are expected for release in 2016–17.

salt, rice and milk fortification. The NFSA allows for provision of fortified wheat flour available through the PDS program. Rapid release and dissemination of all the biofortified crops should be encouraged as an additional tool for promoting a more nutrition-sensitive food system. Procurement of biofortified pearl millet, rice and wheat for the PDS systems would give these crops a rapid boost in terms of their scaling up, while fulfilling the iron and zinc requirements at a population level.

3.8. Inter-sectoral and inter-departmental convergence on nutritional goals

There is a lack of focus on nutrition in the various programs initiated by the ministries of agriculture, and the food and public distribution schemes. The supply-side focus of nutrition policy leads to competing priorities across various food, economic and agricultural departments leading to a policy “inertia” which results in a continuation of the *status quo* of a calorie focused policy stance ([Thow et al., 2016](#)). Investments in health, sanitation, agriculture, empowering women together with food and nutrition programs require inter-departmental coordination, otherwise all nutrition related investments would be undermined ([Haddad, 2011](#)). The convergence of various schemes such as ICDS with national Rural Health Mission (NRHM) and the Total Sanitation Campaign (TSC) exists only as proposals without much action ([Mohmand, 2012](#); [Thow et al., 2016](#)). Lack of coordination between the various departments have often been cited as the reason for slow progress on malnutrition. Nutrition as a common objective, in our view could be a very effective means for focus and convergence since it cuts across all relevant departments. For instance, access to water, quality of sanitation and agricultural production are all crucial for reducing malnutrition. Hence, better nutrition as the common policy agenda provides these disparate programs a better operating framework for improved developmental outcomes in the country. Recent successes of the state level nutrition missions and the inability of federal attempts to bring about an improvement in nutritional status underscores the need for decentralization of these programs with flexibility at the lower levels of administrative units to tailor it to their particular requirements. That would also make the convergence of these schemes much easier.

3.9. Decoupling consumer welfare objectives from producer protection objectives is an urgent policy imperative

The successful transition from a staple grain based food security program to a nutrition security program that promotes a nutrition sensitive food system requires a break in the political nexus between the farm lobby, the parastatals responsible grain procurement and the populist lobby that purports to speak for the poor consumers who benefit from the access to subsidized grain. The political economy challenges in breaking this nexus are enormous and not easily surmountable. In the short to medium term, diversification of the PDS system to include pulses and coarse cereals could reduce the power of the farm lobby that had historically supplied rice and wheat to the government procurement system. Addition of coarse cereals and pulses would geographically disperse the sources of supply and hence reduce the lobbying power of farmers from one or two states. Also, efforts to move from a food to a cash based consumer safety net program could help delink consumer protection from producer protection. Although in this case one needs to identify compensation mechanisms for producers, such as an income transfer program, which once implemented may be difficult to exit out of. Transition to high value agriculture in the high potential states, such as Punjab and Haryana, could raise farm incomes substantially and thereby compensate for the loss in assured income from the procurement system. In the long run, structural transformation and the exits from agriculture in the high productive states could result in the decline in the share of income from the procurement system and hence its political importance.

4. Conclusion

Due to the historic success of agricultural policy in ensuring adequate quantities of staple cereal grain and thereby managing the problem of famine, the food security challenge has evolved in much of the developing world. It is no longer about making enough calories available, but rather about enhancing food diversity to addressing malnutrition in its multiple dimensions. For the poor, it's about having access to adequate amounts of protein, vitamins, and minerals. For the middle class, it's about addressing emerging health concerns associated with overweight and obesity through higher quality diets. There is however, a growing disconnect between agricultural policy and contemporary nutritional challenges.

Agricultural policy is still heavily biased towards improving staple grain productivity, especially for the big three cereal crops—rice, wheat and maize—while the diet diversity needs of the middle class and the poor alike are not adequately addressed. Staple grain “fundamentalism” has constrained the ability of agricultural policies to achieve positive nutritional outcomes. The persistence of Green Revolution-era policies and structural impediments, combined with a weak private sector, limit the supply responsiveness for vegetables and other non-staple foods. Creating a “level policy playing field” that corrects the historical bias in favor of staple crops would improve incentives for diversification of production into non-staple foods. In today's world and into the future, we need a “crop-neutral” policy that removes distortions and allows farmers to respond to market signals when making crop production choices.

Promoting a diversified food system that improves the affordability of nutrient rich pulses, horticulture and livestock products ought to be a high priority for food policy at the national and state levels. Enhancing farmers' ability to diversify production systems would require high levels of public and private sector investment in transportation, storage, and market development. Investments are also required to reduce transactions costs for smallholder integration into non-staple food markets. Diversifying diets to include protein and micronutrient-rich food could provide new opportunities for agriculture-led growth for smallholder farmers.

Given the connection between market linkages, economic growth, and dietary diversity, investments that can equip a diverse socio-economic group of farmers (including smallholders) to participate in relevant markets are essential. Public policies aimed at creating an “enabling environment” that includes institutions that encourage private sector investment lead to new market opportunities for farmers and thereby promote diversification. Market development investments include both connective infrastructure (paved roads, telecommunication networks, distribution networks) and mediating infrastructure (credit sources, credit rating agencies, property titles, and other legal and regulatory institutions that can depersonalize exchange transactions and make assets fungible).

Moreover, policies that succeed in creating such an enabling environment for agriculture may improve equity by including those among the rural poor who are less likely to have access to nonfarm employment, such as women farmers, the uneducated, and recent immigrants, in active markets and distribution chains. Policy and investments in market information technologies, product standardization, and food safety regulations can build consumer trust, identify new market demands, and provide meaningful opportunities for farmer response.

Finally, food assistance programs need to move towards nutritional improvements, rather than focusing only on staple grain sufficiency as the desired outcome. Food assistance programs have huge potential to influence a diversified diet portfolio, not only through extra purchasing power but also through the promotion of more nutritious foods, such as pulses. The design of such programs and the effectiveness of delivery system holds the key to achieving better nutrition through social support programs.

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